INSTRUCTION PROGRAM

TRANSACTIONS

AMERICAN ACADEMY
of
OPHTHALMOLOGY
and
OTOLARYNGOLOGY

MARCH - APRIL
1956

Volume 60 Number 2

ANNUAL MEETING, OCTOBER 14-19, 1956, CHICAGO

New Effectiveness in Ear Canal Therapy

Otamylon

TRADEMARK

Ear Drops

BACTERICIDAL • FUNGICIDAL • ANALGESIC • HYGROSCOPIC

OTITIS EXTERNA

FURUNCULOSIS

ATOMYCOSIS

OTITIS MEDIA

Otamylon is a clear, odorless, sterile, viscid liquid containing Sulfamylon* HCl and benzocaine in propylene glycol.

Otamylon is effective against all commonly encountered ear pathogens. Through its local analgesic and hygroscopic effect, Otamylon quickly soothes the irritated or inflamed surfaces and promotes prompt healing.

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Supplied: Bottles of 15 cc. with dropper.

*Sulfamylon
brand of mafenide
trademark reg.
U.S. Pat. Off.

Winthrop LABORATORIES NEW YORK 18, N.Y. • WINDSOR, ONT.

TRANSACTIONS

American Academy of Ophthalmology and Otolaryngology

VOLUME 60 MARCH - APRIL, 1956 NUMBER 2

TABLE OF CONTENTS

PAGE

STRESS IN DISEASE 161
GUNNAR HEUSER, M.D.

SYMPOSIUM: MENIERE'S DISEASE

ETIOLOGY 167
HENRY L. WILLIAMS, M.D.

PATHOLOGY 172
JOHN R. LINDSAY, M.D.

DIAGNOSIS 177
THEODORE E. WALSH, M.D.

MEDICAL TREATMENT 182
GORDON D. HOOPLE, M.D.

SURGICAL TREATMENT 186
FRANK D. LATHROP, M.D.

DISCUSSION 193
FREDERICK T. HILL, M.D., Moderator

SUMMATION 197
FREDERICK T. HILL, M.D.

CONGENITAL ANOMALIES DUE TO MATERNAL INFECTIONS ESPECIALLY IN THE EARLY MONTHS OF PREGNANCY 199
SIR NORMAN GREGG

THE AGING OF THE RETINA 206
PROF. DR. ARNOLD PILLAT

PROLONGED ADMINISTRATION OF DIAMOX IN GLAUCOMA 210
IRVING H. LEOPOLD, M.D., and PAUL L. CARMICHAEL, M.D.

DIAMOX: FURTHER REPORTS ON ITS USE 215
ROBERT R. TROTTER, M.D.

AN ADJUSTABLE TELESCOPIC VISUAL AID 216
A New Instrument
MORTIMER A. LASKY, M.D.

CAVERNOUS HEMANGIOMA OF THE OPTIC DISC AND RETINA 217
WINDSOR S. DAVIES, M.D., and MARK THUMIM, M.D.

(Continued on Next Page)

Printed bimonthly, February, April, June, August, October and December, by the Douglas Printing Company, 109 North 18th Street, Omaha 2, Nebraska, for the American Academy of Ophthalmology and Otolaryngology. Editorial and business office, 100 First Avenue Building, Rochester, Minnesota. Subscription price $10.00 yearly. Second class mail privileges authorized at Omaha, Nebraska.

TABLE OF CONTENTS *(Continued)*

PAGE

EDITORIALS

Home Study Courses 219

Hans Brunner 220

TEACHERS' SECTION: OTOLARYNGOLOGY

Training in General Surgery for Otolaryngologists 222
Hans von Leden, M.D.

Factors Motivating Choice of Profession 227
Wendell L. Wylie, D.D.S.

Is Voluntary Teaching on the Way Out?

Part I 231
John R. Lindsay, M.D.

Part II 235
Lawrence R. Boies, M.D.

Part III 236
George E. Shambaugh, M.D.

Part IV: Ivory Tower Versus the Market Place 238
Frederick T. Hill, M.D.

A Teaching Day in Otolaryngology 242
Alfred W. Doust, M.D.

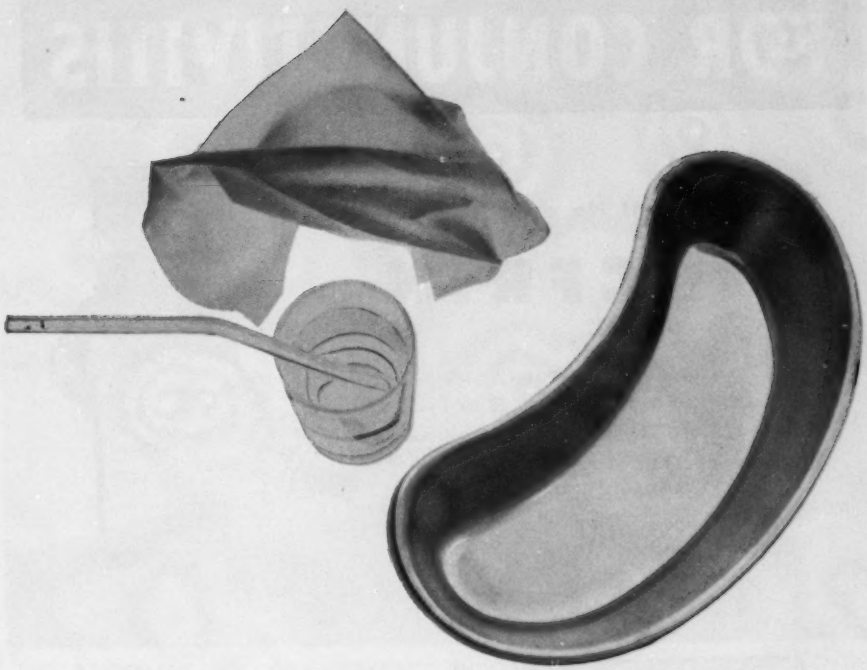
In Memoriam 244

Section on Instruction 245

News Notes XXXIX

Positions Available XLIV

Clinics in Mexico XLV



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1. Mathews et al.: Am. Pract. & Dig. Treat. 6:360 (Mar.) 1955.
2. Albert and Coakley: Anesth. & Analg. 33:285 (July-Aug.) 1955.

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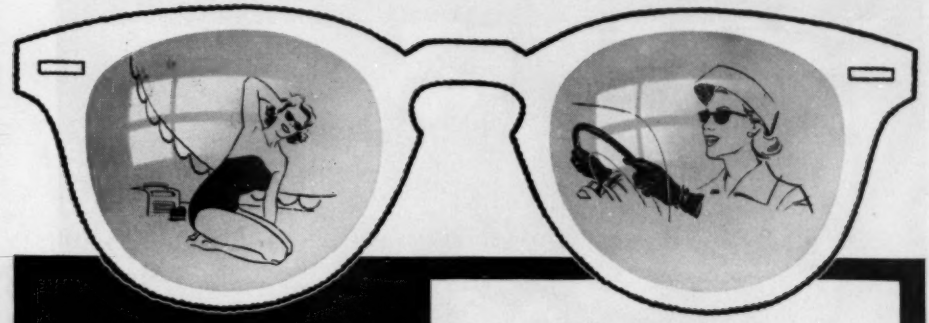

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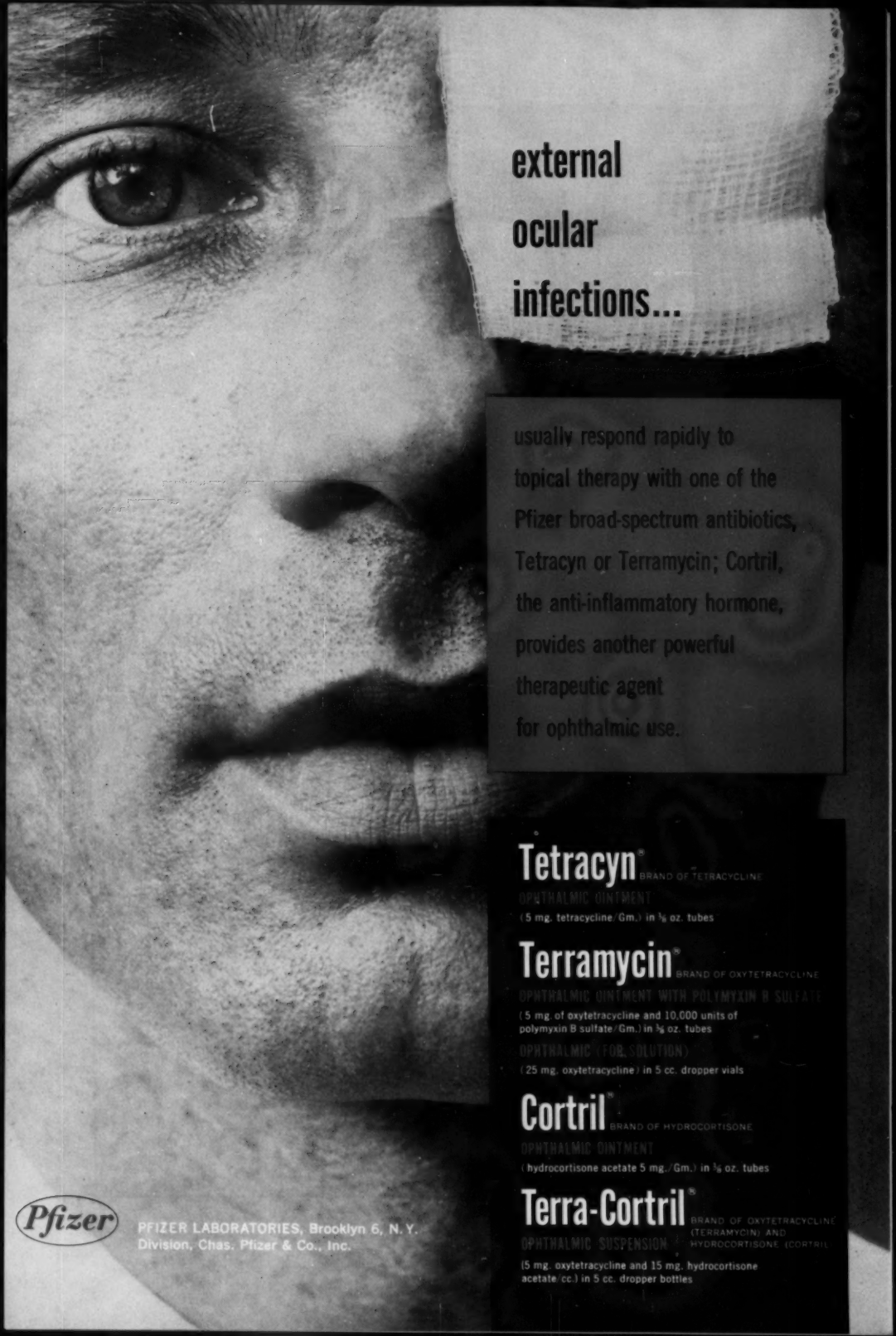
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ocular
infections...
usually respond rapidly to
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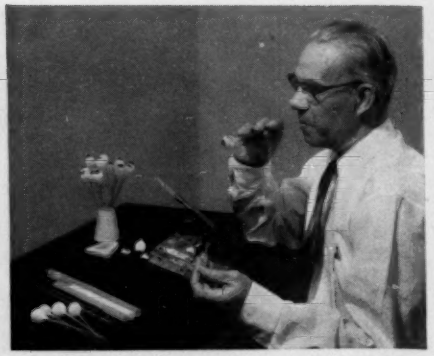

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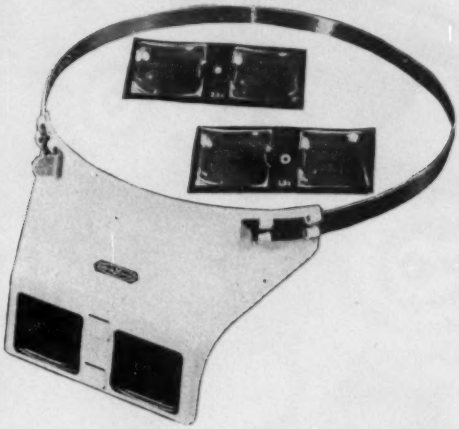

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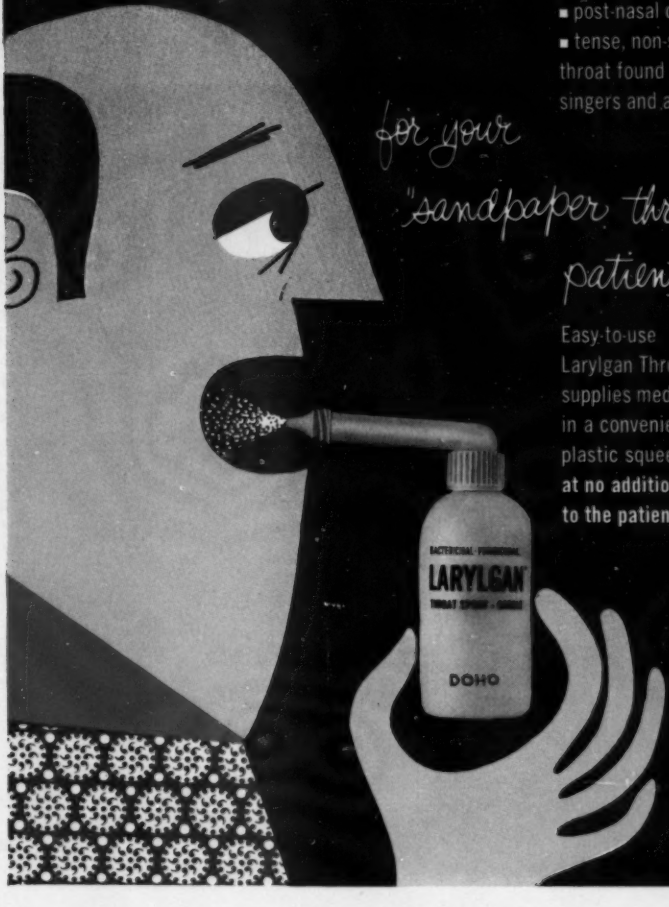

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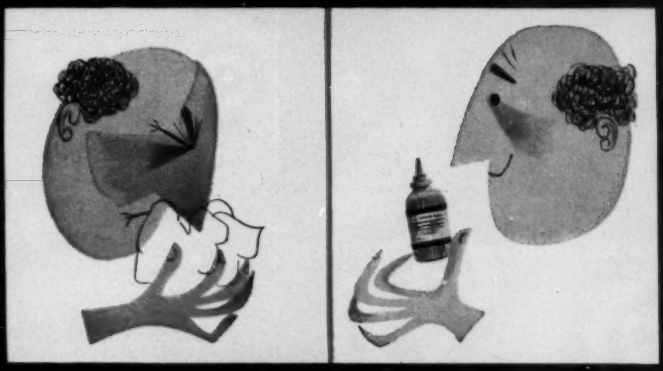

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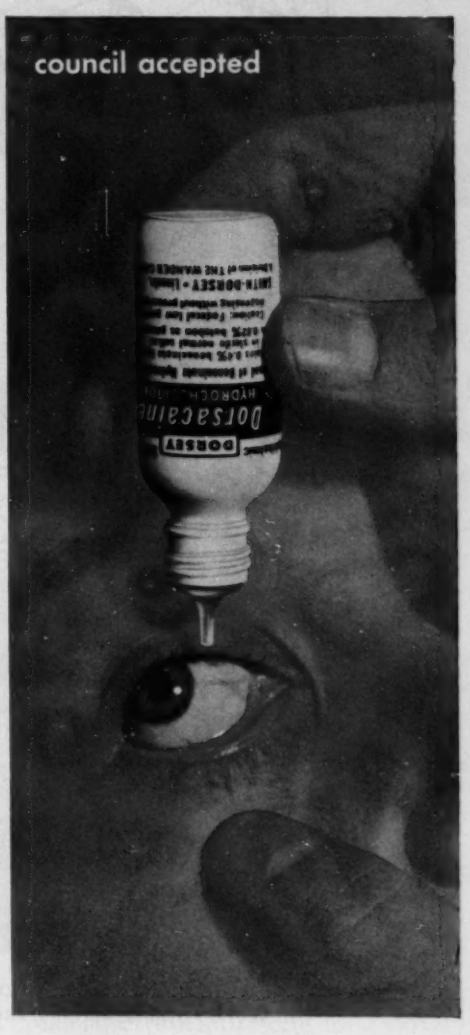

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*Schlegel, H. E., Jr., and Swan, K. C.: A. M. A. Arch. Ophth. *51*:663 (May) 1954.

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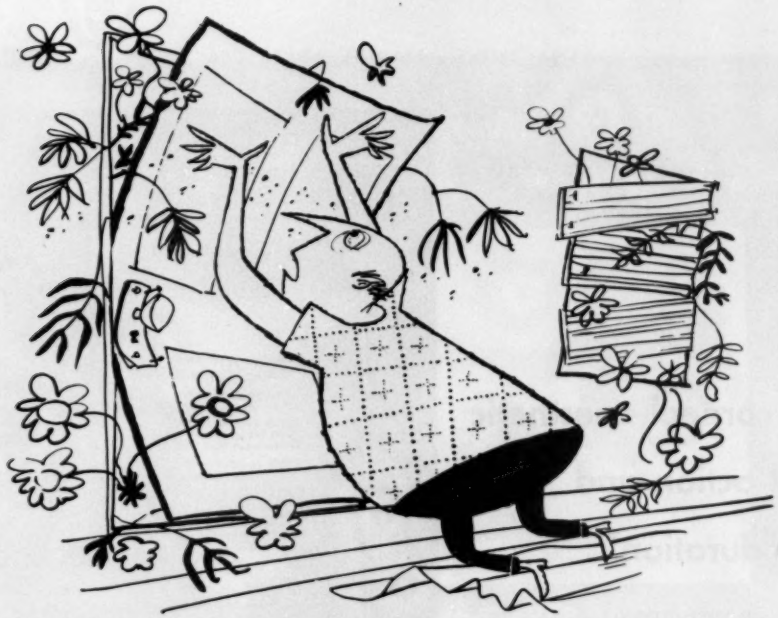

there's no escape from pollen . . .
help speed relief with Estivin
safely soothe irritated ocular
and nasal membranes with **sterile**

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a specially prepared infusion of *Rosa gallica L* (rose petals) preserved with 1:10,000 sodium ethylmercurithiosalicylate.

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allergic disorders complicated by infection
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provides the combined action of CORTRIL,® potent adrenocortical hormone, and TERRAMYCIN,® highly successful broad-spectrum antibiotic, for a variety of organisms encountered in ophthalmologic practice.

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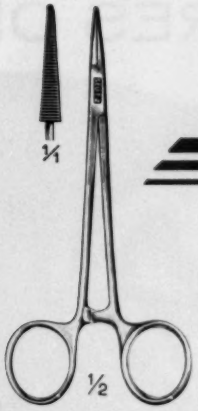

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OPHTHALMOS Sterile stable eye medication	in the Steridropps® for surgery and postoperatively	and in Dropper D-S Sealed bottles for prescription and office use.

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nasal spray
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- not irritating
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NASAL SPRAY *in plastic spray-bottles of ½ fl. oz.*

NASAL SOLUTION *in glass bottles of 1 fl. oz. (with dropper), also 1 pt. and 1 gal.*

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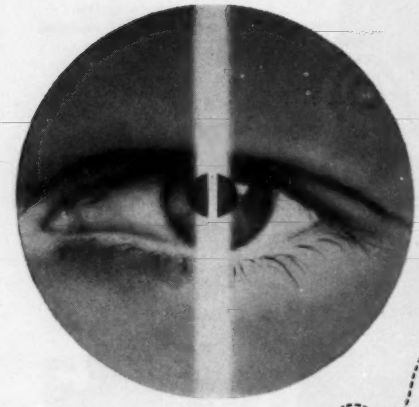

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Condenser Focusing Control on Each Side...one hand operation. Streak can be varied from wide band, to sharp narrow line. Concave or plane mirror effect.

Look closer...

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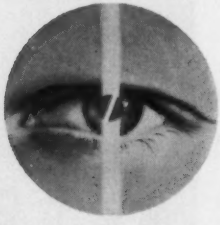
Choice of Any AO Ful-Vue Cord or Battery Handle.

Famous Ful-Vue Construction throughout.



New! Ful-Vue Diagnostic Sets, complete with Streak Retinoscope available in Duraflex Cases.

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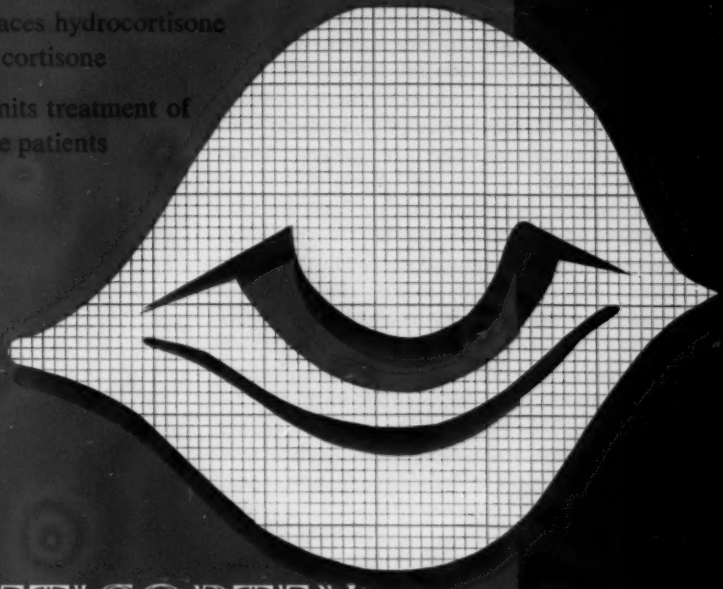
in inflammatory and allergic eye disorders...

replaces hydrocortisone
and cortisone

permits treatment of
more patients



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- significantly less edema due to sodium retention
- effective in smaller dosage
- prompt relief for allergic and inflamed eyes

METICORTEN,* brand of prednisone.
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History

The first investigation of a hemostat with an action comparable to Adrenosem Salicylate was made by Derouaux and Roskam[1] in 1937. They reported that an oxidation product of adrenalin, adrenochrome (which has no sympathomimetic properties), has prompt hemostatic activity.

It was further found that various combinations of adrenochrome, notably the oxime and semicarbazone, produced stable solutions. But, these were so slightly soluble that sufficient concentration could not be obtained for practical therapeutic use. By combining these adrenochrome compounds in a sodium salicylate complex a stable, soluble form can be obtained. This complex has been given the generic name, carbazochrome salicylate, and is supplied under the trade name Adrenosem Salicylate.

Roskam, in his study entitled "The Arrest of Bleeding,"[2] enumerates "the drugs whose efficaciousness as hemostatics have been proved by accurate methods in experimental animals and in healthy men as well. . . . One is the monosemicarbazone of adrenochrome [Adrenosem Salicylate]."

Chemistry

Adrenosem Salicylate is a synthetic chemical. The full chemical name is adrenochrome monosemicarbazone sodium salicylate complex.

Pharmacology

Although it is chemically related to epinephrine, Adrenosem Salicylate has no sympathomimetic effects. It does not alter blood components, nor does it affect blood pressure or cardiac rate.[2-7]

(* U.S. Patent 2,581,850)

Sherber, in an early study,[3] concludes that Adrenosem Salicylate* "is a potent antihemorrhagic factor in those conditions in which the integrity of the smaller vessels is interrupted, and is superior to any similar material that is now available."

He continues, "From our experience it appears that adrenochromazone complex is indicated in preventing vascular accidents incident to hypertension; in maintaining small vessel integrity; in the preoperative preparation where oozing from a vascular bed is anticipated, as in tonsillectomies, adenoidectomies and prostatectomies; and as an adjunct in the treatment of bleeding from such surgical procedures."

Adrenosem Salicylate may be administered simultaneously (but separately) with any type of anesthetic, anticoagulant, or vitamin K and heparin.

A Unique Systemic Hemostat

Clinical investigators[2-7] are in agreement that Adrenosem Salicylate controls bleeding and oozing by decreasing capillary permeability and by promoting the retraction of severed capillary ends. It aids in maintaining normal capillary integrity by direct action on the intercellular "cement" in capillary walls. The interesting work of Fulton[8] confirms this. Adrenosem Salicylate, since it is not a vasoconstrictor, has no effect on large severed blood vessels and arterioles.

Adrenosem Salicylate is being used both prophylactically and therapeutically in thousands of hospitals, and in virtually every type of surgical procedure. It has also proved most useful in dental surgery.[7]

Owings reported on the use of Adrenosem Salicylate in controlling postoperative adenoid bleeding in 102 cases.[4] "We have used 2½ mg.

(½ ampule) intramuscularly, 15 minutes before anesthesia for children and 5 mg. (1 ampule) for adults." In only one patient did bleeding occur. Three others showed red blood from the nose and mouth. These patients "were then given 5 mg. intramuscularly, with prompt and complete control. We have also noticed that bleeding stopped more promptly on the operating table."

This is a 1% incidence of postoperative bleeding using Adrenosem Salicylate preoperatively, compared to an incidence of 10% postoperative bleeding in all cases taken from previous records, without Adrenosem Salicylate medication.

Peele reports on the use of Adrenosem Salicylate in treating 178 patients with 24 different conditions.[5] The drug was first used to control postoperative hemorrhage from the adenoid region. He adds: "The results were so dramatic that since that date [1953] Adrenosem Salicylate has been used postoperatively to reduce bleeding from all otolaryngologic and bronchoesophagolic procedures, to treat postoperative hemorrhage from the tonsil and adenoid regions, and to treat selected cases of epistaxis."

The effectiveness of Adrenosem Salicylate in controlling bleeding and oozing in 330 patients is reviewed by Bacala.[6] "Our experience of the effect of carbazochrome salicylate on 317 surgical indications and 13 obstetricogynecological conditions, has been therapeutically encouraging and successful for the control of capillary bleeding. Foremost among the cases studied were 223 tonsillectomies definitely benefited by this metabolic hemostat, making a diminution of the control incidence of post-tonsillectomy bleeding of 19.8% down to 7%. It has also been found useful in gastro-intestinal bleeding, cataract extraction, epistaxis, incisional seepage, trans-urethral prostatectomy, menometrorrhagias, cervical ooze, antepartum and postpartum bleeding, threatened abortion, and prevention of capillary hemorrhages during hedulin or dicumerol therapy."

Side Effects

All investigators concur that, at recommended dosage levels, Adrenosem Salicylate is free from toxic effects. No cumulative effects attributable to the drug have been reported.

The only side reaction noted has been a transient stinging sensation in the area of injection when Adrenosem Salicylate is used intramuscularly. As one investigator comments: "The brief discomfort which attends the injection of Adrenosem into the gluteal region has not been a significant problem in children or adults as originally anticipated."[5]

Indications

Idiopathic purpura, retinal hemorrhage, familial telangiectasia, epistaxis, hemoptysis, hematuria.

Postoperative bleeding associated with:
tonsillectomy, adenoidectomy and nasopharynx surgery;
prostatic and bladder surgery;
uterine bleeding;
postpartum hemorrhage;
dental surgery;
chest surgery and chronic pulmonary bleeding.

Dosage

For recommended dosage schedules, please send for detailed literature.

Supplied

Ampuls: 5 mg., 1 cc. (package of 5).
Tablets: 1 mg. S.C. Orange, bottles of 50.
Tablets: 2.5 mg. S.C. Yellow, bottles of 50.
Syrup: 2.5 mg. per 5 cc. (1 tsp.), 4 ounce bottles.

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8. Fulton, M.D., Dept. of Biology, Boston University: Personal Communication.

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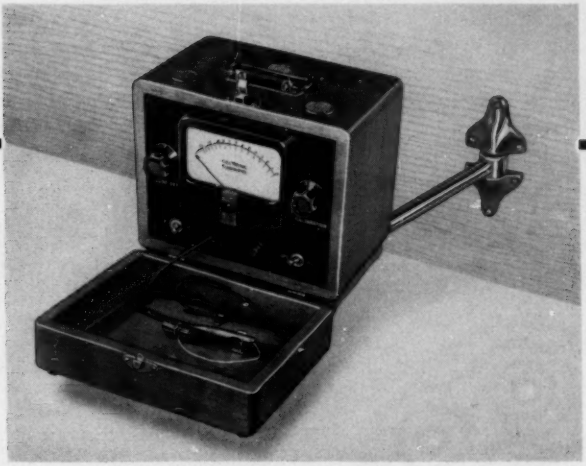

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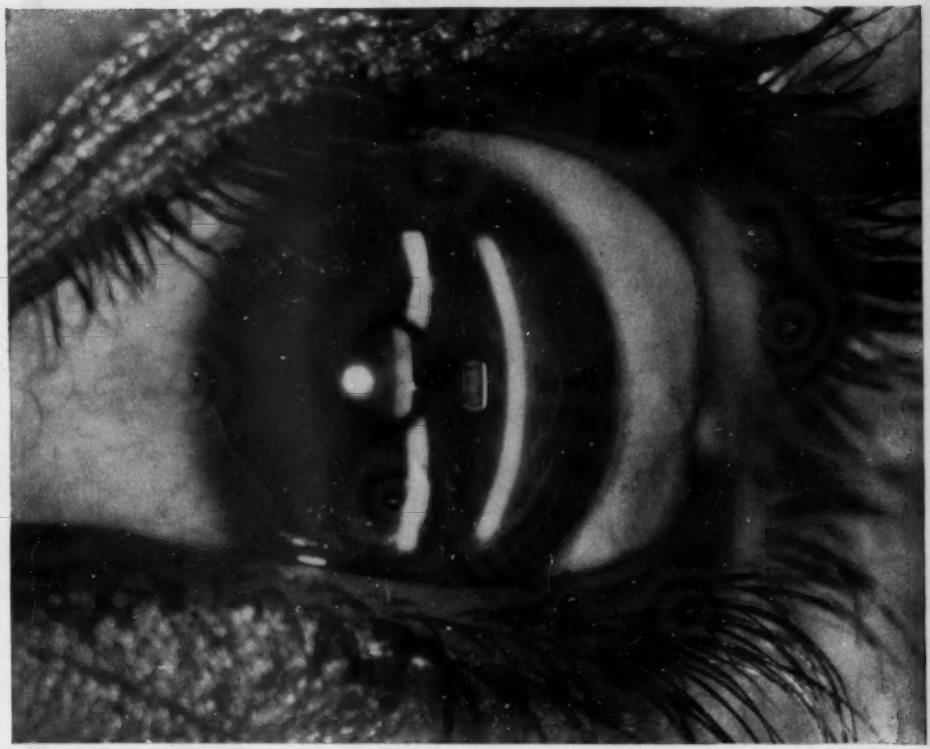

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Reference: 1. Hogan, M. J., Thygeson, P. and Kimuras, J., *Arch. Ophth.* **53**:165, Feb. 1955.

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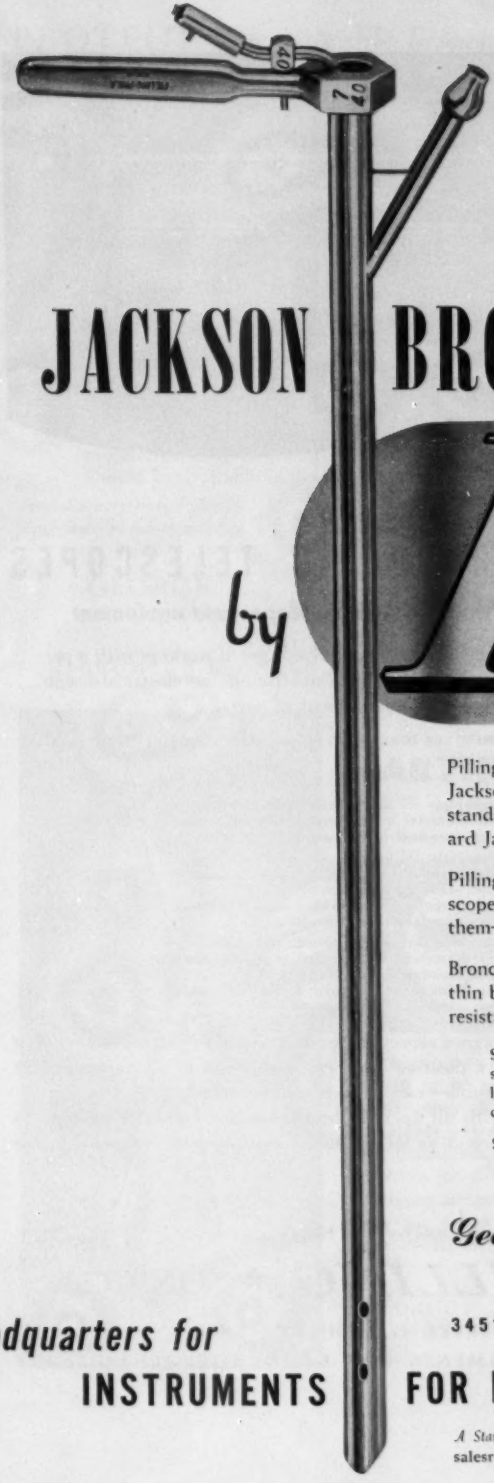

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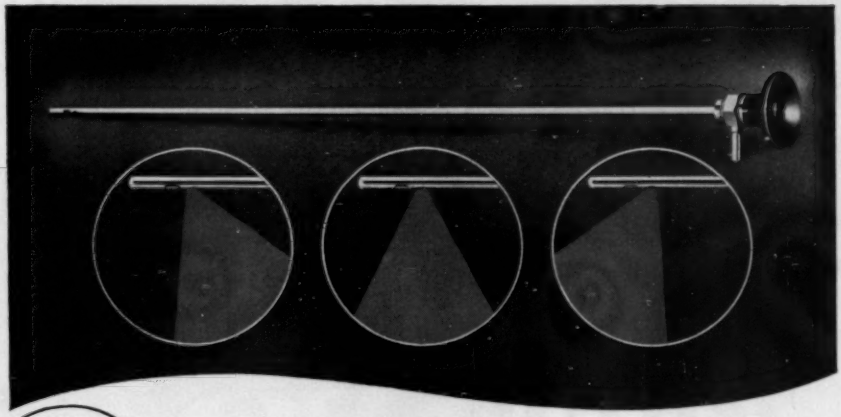

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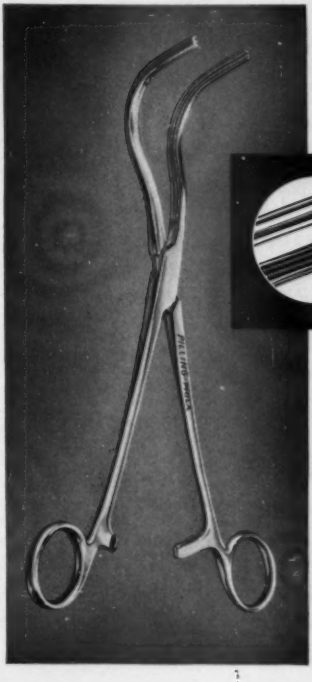

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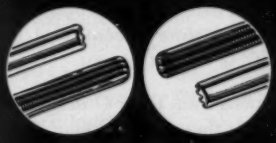

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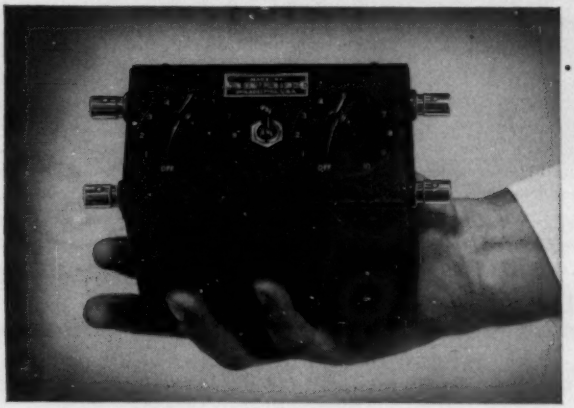

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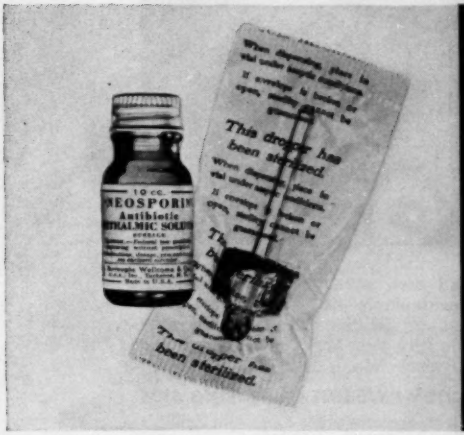

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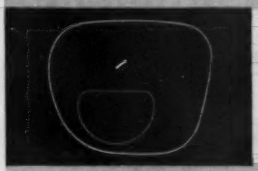

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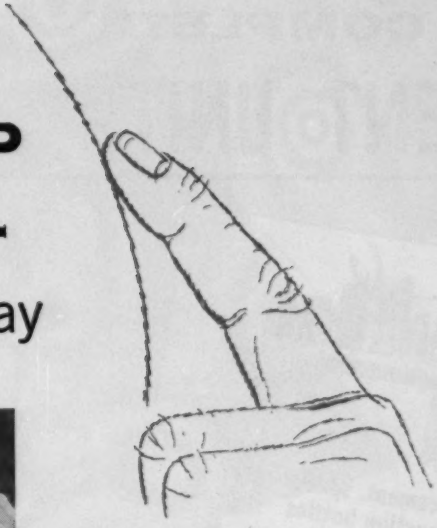

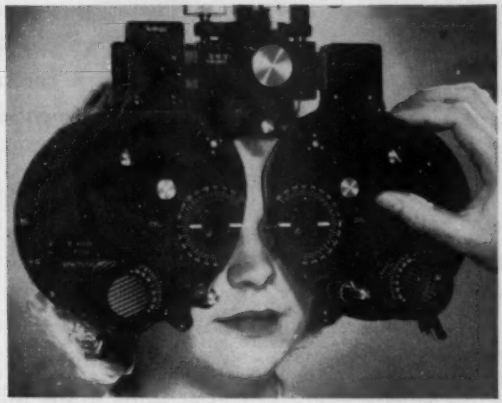

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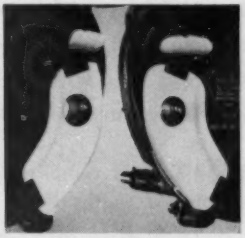

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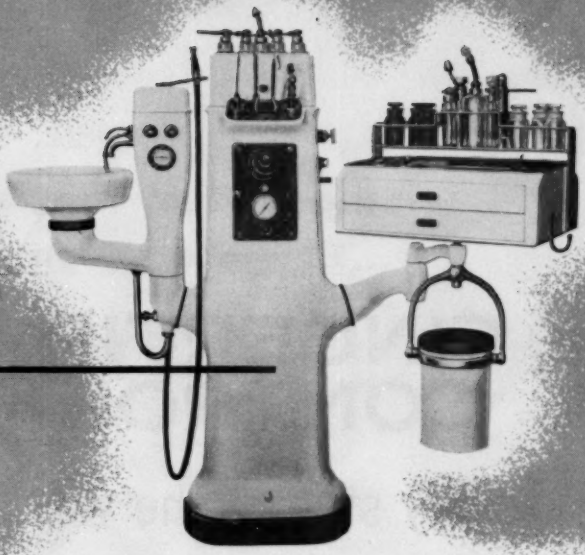

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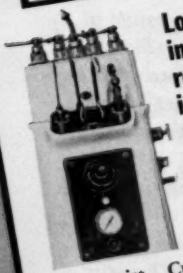

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STRESS IN DISEASE

GUNNAR HEUSER, M.D.
MONTREAL, QUE., CANADA
BY INVITATION

THE latest definition of "stress" by Selye[1] reads: "Stress is the state manifested by a specific syndrome which consists of all the non-specifically induced changes within a biologic system."

The concept of stress was formed in 1936, when it was demonstrated by Selye[2] in animal experiments that the organism responds in a stereotypical manner to a variety of widely different factors, such as infections, intoxications, trauma, nervous strain, heat, cold, muscular fatigue, and X-irradiation. The specific actions of all these agents are quite different. Their only common feature is that they place the body in a state of general (systemic) stress. Hence, it was concluded that the stereotypical response, which is superimposed upon all specific effects, represents somatic manifestations of nonspecific stress itself.

The most outstanding manifestations of this stress response are adrenocortical enlargement with histologic signs of hyperactivity; thymicolymphatic involution with certain concomitant changes in the blood count (eosinopenia, lymphopenia, polynucleosis); and gastrointestinal ulcers, often accompanied by other manifestations of damage or shock.

It was strange to remark that while during this reaction all the organs of the body showed involutional or degenerative changes, the adrenal cortex actually seemed to flourish on stress. Thus, this adrenal response was suspected to play a useful part in this reaction, which was visualized as a call to arms of the body's defense forces and was named the alarm reaction.

Subsequent studies showed that the alarm reaction is but the first stage of the much more prolonged, so-called general adaptation syndrome. This general adaptation syndrome comprises three distinct stages, namely:

1. The alarm reaction in which adaptation has not yet been acquired
2. The stage of resistance in which adaptation to stress is optimal
3. The stage of exhaustion in which the acquired adaptation is lost again.

In order to elucidate the kinetics of this syndrome, the following procedures were adopted:

Rats were adrenalectomized and then exposed to stressor agents. This showed that in the absence of the adrenals, stress can no longer cause thymicolymphatic involution or characteristic blood count changes.

When adrenalectomized rats were treated with the impure corticoid extracts available at that time, it became evident that thymicolymphatical involution and the typical blood count changes could be produced by adrenal hormones, even in the absence of the adrenals. Therefore, these changes are considered to be indirect results of stress mediated by corticoids.

Conversely, the gastrointestinal ulcers and other manifestations of pure damage or shock were actually more severe in adrenalectomized than in intact animals and could be lessened by treatment with corticoid extracts. It was concluded that these lesions are not mediated through the adrenals; in fact, they are actually combated by an adequate adrenal corticoid response to stressor agents.

Research Associate, Institute de Médicine et de Chirurgie expérimentales, Université de Montréal.

Part of the work reported was subsidized by a grant from the Schering Corporation.

Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

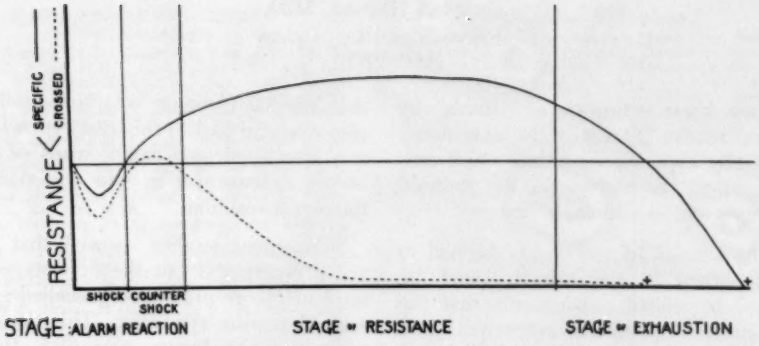

FIG. 1—The three stages of the general adaptation syndrome.

But what stimulates adrenal cortical function during stress? Later it was found that among many surgical interventions tried, only hypophysectomy prevented the adrenal response during the alarm reaction. It was concluded that stress stimulates the cortex through an adrenocorticotrophic hormone, now known as ACTH.

In the course of time, many more data have been assembled and many more stress tests have been evaluated.

Vasopressin, for instance, is secreted from the hypophyseal posterior lobe in greater amounts during stress, and as a result the diuresis is inhibited. Adrenocorticotrophic hormone secretion from the anterior lobe is measurably enhanced; as a result, the adrenals increase in weight and pour out their hormones, especially the 17-hydroxycorticoids. Their amount can now be quantitated in blood and urine, and it is found to be higher during stress. The 17-ketosteroids in urine, which are partly derived by the adrenal hormones, will also be excreted in excess. The blood count, adrenalin and nor-adrenalin secretion and uropepsin are other indicators of stress, to mention only a few from a long list.

Of course, this pattern of response has been examined in detail regarding the course it takes during a given time. It was found that it largely corresponds to the previously defined clinical stages of the alarm reaction of resistance and exhaustion, thus following a typical curve.

To sum up we can say: many, in themselves different, agents and situations were found to elicit the same distinct response. This response was, therefore, considered to be nonspecific and was named "stress." It involves mainly the hypophysis and the adrenals. It develops in three stages: alarm reaction, stage of resistance, and stage of exhaustion.

The general adaptation syndrome can be viewed as a means of the organism to keep its internal milieu and homeostasis by leading it to a stage of resistance and adaptation to stress. The general adaptation syndrome is a normal response of a normal body to stress.

Without hypophysis or without adrenals, adaptation is possible but poor. For optimal adaptation, the presence of both glands was proved to be essential.

This, so far, is the concept of generalized stress and the general adaptation syndrome, as they have been worked out since 1936.

It was not until recently, however, that interest in local defense reactions has again come up after a long period of relative disinterest.

It had long been known that many local responses to injury are nonspecific; it had been noted, for instance, that a variety of "topical stressors" (burns, microbes, drugs) share the power of producing nonspecific tissue damage and/or inflammation. However, it is only recently that the close relationship between the systemic and local types of nonspecific reactions has been more clearly established. While the characteristic response of the body to systemic stress is the general adaptation syndrome, topical stress elicits a so-called "local adaptation syndrome," whose principal repercussions are confined to the immediate vicinity of the eliciting injury. They consist, on the one hand, of degeneration, atrophy and necrosis; on the other hand, of inflammation, hypertrophy, hyperplasia and, under certain conditions, neoplasia.

At first sight, there appears to be no striking similarity between the systemic and the local reaction-types. A patient in traumatic shock furnishes a characteristic example of the general adaptation syndrome and, in particular, of its earliest stage, the "shock phase" of the general alarm reaction. An abscess formed around a splinter of wood represents a typical example of the local adaptation syndrome and, in particular, of its "stage of resistance," during which the defensive inflammatory phenomena predominate.

On the surface, these two instances of disease reveals no striking similarities; yet, more careful study shows them to be closely related.

This close relationship between the general and the local adaptation syndromes could only be established when methods were found to study the local adaptation syndrome in detail. Among others, two techniques were developed, mainly in our Institute, the "Topical Irritation Arthritis" and the "Granuloma Pouch."

The Topical Irritation Arthritis is induced by injecting irritants into the hind paw of rats, and the degree of inflammatory swelling is then measured. The so-called Granuloma Pouch develops after injecting a given amount of air, together with an irritant (e.g., 1 per cent croton oil), under the skin of rats. In this air sac, exudate and a distinct granulomatous wall develop. Both can be measured in milliliter and gram, thus giving an exact indicator of the inflammatory process together with the histologic picture.

Once these methods were established and easily reproducible, they were found to be sensitive indicators, not only of inflammation but also of the relationship between the general and the local adaptation syndromes.

Among other things, the two syndromes are thought to be interrelated for the following reasons:

1. Both are nonspecific reactions, comprising damage and defense.
2. Both are triphasic, with typical signs of resistance during the second stage; e.g., croton oil, 100 per cent, can be injected into and tolerated by such a granuloma pouch during the stage of resistance. The same concentration would cause immediate necrosis upon injection under a normal, not pretreated skin.
3. Both are singularly sensitive to the hypophyseal and adrenal hormones. These hormones, which are especially concerned in the stress response, were also found to influence the inflammatory reaction deeply:

adrenocorticotrophic hormone, cortisone, and hydrocortisone suppress it; growth hormone, desoxycorticosterone and aldosterone enhance it. Thus, based on experimental evidence, the already-mentioned hormones could be grouped, according to their effects, as being either antiphlogistic (adrenocorticotrophic hormone, cortisone) or prophlogistic (growth hormone, desoxycorticosterone, aldosterone).

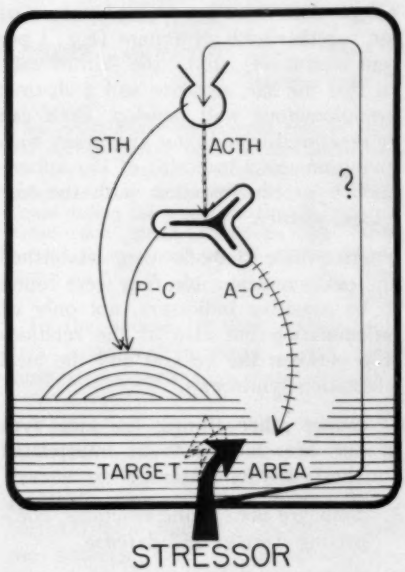

FIG. 2—Schematic illustration of the hypophysco-adrenal response to stress, which is mediated by, as yet, an unknown pathway (?) to the hypophysis. This gland secretes the growth hormone (STH) and especially the adrenocorticotrophic hormone (ACTH). ACTH in turn influences the secretion of corticoid hormones (P-C=prophlogistic corticoids; A-C=antiphlogistic corticoids).

4. If the two reactions develop in the same individual, they greatly influence one another; that is, systemic stress markedly alters tissue reactivity to local stress and vice versa. One example will suffice to show the importance of this point. If, in an animal, local irritation has been produced with the granuloma-pouch technique, large amounts of exudate will regularly develop. If, however, at the same time the animal were immobilized by being tied on a board, inflammation and exudate formation would be greatly or completely inhibited. Thus, stress inhibits inflammation as cortisone and hydrocortisone, the antiphlogistic hormones, do.

This is an example from which we can conclude that stress enhances cortisone secretion in preference to that of desoxycorticosterone and aldosterone. Many other indicators show that, indeed, the stress effect is imitated by cortisone-like hormones. With cortisone, we can elicit most of the signs so typical of a normal stress response: thymus and lymph-node involution, eosinopenia in the blood, enhancement of uropepsin excretion, inhibition of inflammation, and others.

It has been shown, however, that actually stress affects these various peripheral target-organs not only through increased corticoid production but also, simultaneously, by increasing tissue sensitivity to the corticoids. This has been referred to as a "conditioning effect." The extraordinary importance of this phenomenon in human physiology and clinical medicine was first clearly demonstrated by G. W. Thorn and his co-workers, who found that the adrenals of man produce an actual excess of cortisone-like compounds only in severe stress (e.g., surgical trauma), yet even mild stressors can evoke the manifestations of antiphlogistic hormones. These clinical observations and Ingle's views on the role of "permissive" actions in stress have led to a re-examination of the mechanism of "conditioning" in animal experiments.

We have learned to distinguish between nonspecific actions due primarily

to corticoid overproduction and nonspecific actions due primarily to sensitization or conditioning of the body for the effects of its endogenous corticoids. The nature of these conditioning factors during stress is still unknown. We can further distinguish specific actions in the production of which the adrenal cortex plays only the supportive role of maintaining tissue reactivity.

Cortisone in overdosage will lead to disease, such as perforation or formation of peptic ulcers, Cushing's syndrome with high blood pressure, osteoporosis, obesity, mental diseases, and infections. However, overdosage with desoxycorticosterone leads to disease, too, at least in animals. Examples are high blood pressure, periarteritis, nephrosclerosis and inflammatory reactions. The ratio of secretion between the two groups of hormones seems to be well balanced under normal conditions. Under conditions of stress, the balance is shifted in favor of cortisone-like corticoids, so as to adapt the organism in the best possible way.

One of the important problems of stress research is whether this normally balanced secretion could be so deranged by stress that disease ensues, showing either one of the already mentioned syndromes of overdosage. If this could be proved to occur after situations of stress, the term "diseases of adaptation" would be justified, indeed. It would comprise absolute or relative derangements of adrenal hormone secretion; that is, a failing attempt of the body to cope with and to adapt itself to stress.

Up to now there is not one disease which has been proved to be entirely and exclusively a disease of adaptation. Evidence accumulates, however, and shows that we can assume that many diseases are at least partly diseases of adaptation as regards their pathogenesis. The evidence is derived from several different approaches to the problem:

A. Stress as well as hormones of the hypophysis and the adrenals can cause diseases in animals which closely resemble certain human diseases.

B. Hypophyseal and adrenal hormones are known to cause disease in the form of overdosage effects in human beings.

C. Already established diseases in both animals and humans can be greatly influenced either by removing the hypophysis or the adrenals, or by giving hormones of these glands.

D. In diseases which could be viewed as diseases of adaptation, the indicators of stress have been measured, especially the levels of corticoid hormones in blood and urine. An excess of aldosterone excretion has been repeatedly shown to occur in cases of pregnancy toxicosis, nephrosis and hypertension.

This points to the possibility that overdosage with internal aldosterone or desoxycorticosterone has caused the disease. However, the increased secretion of hormones could be merely a result of the disease instead of the cause.

It is virtually certain that our concepts concerning the role of pituitary and corticoid hormones in the pathogenesis of certain diseases of adaptation will have to undergo modification in the future. Meanwhile, however, the stress theory permits us to correlate the known facts and furnishes a concrete plan for the systemic development of this field through planned investigations rather than through the mere empirical collection of chance observations.

By way of a general summary, it may be stated that we still do not have definite direct evidence of a quantitative relationship between the manifestations of the diseases of adaptation and the actual secretion of pituitary and adrenal hormones. However, more than a decade

of intensive research in this field has revealed numerous facts which are in accord with such an interpretation and none which would be incompatible with it.

Viewing the stress response as a normal reaction of a normal body, we have no reason to fight against it. Stress may even be a welcome stimulus to an organism which has lost its impetus; however, the stress reaction may also be exaggerated or deranged. Stress, therefore, has two aspects: a good one and a harmful one. How can we bring about the good one, and how can we fight the harmful one? The answer to the first question would be either that we substitute with hormones for a loss of adaptive energy, as we do in cases of primary and secondary hypocorticoidism, or that we create a nonspecific stress and alarm the body by foreign protein injections, electroshock, salicylates, muscular exercise, hemorrhage, fasting and other means.

An exaggerated stress response should be combated, too. The treatment varies from bed-rest to the modern, so-called antistress drugs (sedatives, chlorpromazine, etc.). Their mechanism of action is not yet fully understood; therefore, we must await the results of further studies before exact indications can be given.

Thus, our hopes of helping the diseased are also based upon these first attempts to create stress and block it at will.

As Selye words it: "We must learn to imitate and, if necessary, to correct and complement the body's own autopharmacologic efforts to combat the stress factor in disease."

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Symposium: Meniere's Disease

ETIOLOGY

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THE etiology of Ménière's disease is not fully known, but evidence indicates that it is an instance of autonomic disintegration or dysfunction with involvement of the peripheral vascular bed of the middle ear.

The labyrinth is essentially an enclosed box, supplied with blood by end arteries. Disorders of the vascular supply, such as thrombosis, embolism or vascular spasm, are proved to occur in an organ with such anatomic construction and, in the labyrinth, could readily cause symptoms of vertigo, tinnitus, loss of hearing and labyrinthine dysfunction, such as are present in Ménière's disease. Anatomists, especially Siebenmann,[1] Shambaugh[12] and Nabeya,[12] have found that the internal auditory artery (or the vestibular artery, depending on whether Siebenmann's or Nabeya's nomenclature is adopted) is divided to supply both the cochlea and the vestibule. As Lermoyez[12] pointed out, a lesion of the vestibular branch could produce vertigo alone, and a lesion of the cochlear branch could produce loss of hearing alone, whereas a lesion of the main stem of the artery would produce the complete triad of Ménière.

It is obvious from the exacerbations and remissions of the disorder that Ménière's disease cannot be based on a permanent process such as thrombosis or embolism, and therefore, if the lesion is vascular, it must be spasm.

It has been shown that the vascular tree, and especially the peripheral vascular bed, is under the control of the autonomic system. Nedzel,[12] however, pointed out that while vasoconstriction normally occurs in a region, an organ, or an area, vasospasm occurring in a single vessel is a pathologic condition and an instance of autonomic disintegration.

The autonomic nervous system, with its chemical mediators to maintain physiologic equilibrium or homeostasis, was described by Cannon[12] and his co-workers. Petersen,[12] however, pointed out that the autonomic nervous system was merely one of the component parts of the autonomic system and the part most recently developed. From the phylogenetic standpoint, the first component of the autonomic system to develop was the physiochemical reactions in tissue and fluids and at cell membranes. To speed these reactions after the development of a vascular system, the hormonal mediators were developed. Finally, when direction and localization of reaction were required, the autonomic nervous system was developed. These three components of the autonomic system form a completely integrated whole. A reaction in one member of the triad is immediately reflected in a reaction of the other two. The changing behavior of the autonomic system is reflected in the vascular system, particularly the peripheral vascular bed, because of the nutritional requirements for autonomic function.

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Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

Petersen[12] suggested that in addition to a well-integrated reaction of the autonomic system, as a result of continued stress, a condition of autonomic disintegration could take place. This has been abundantly confirmed by the work of Selye[9] and others. Petersen pointed out that among the stress factors which might lead to autonomic disintegration were atmospheric changes, fatigue, emotional disturbances, and infections.

It is interesting to note that Duke,[12] in his description of physical allergy, mentioned these same stimuli as causative factors of reactions of physical allergy and that Selye referred to them as active in the general adaptation syndrome.

It seems obvious, therefore, that Petersen in talking of the autonomic disintegration, Duke in talking of physical allergy, and Selye[9] in talking of the alarm reaction and the phase of fatigue are considering the same phenomena from different viewpoints.

Ricker[12] and his collaborators concluded on the basis of numerous careful biomicroscopic investigations on living tissues that the autonomic nervous system had a fundamental controlling influence on local vascular and tissue changes. Ricker considered the chief event in these autonomic reactions to be local blood stasis. He noted three stages of autonomic reaction: first, arterial dilatation; second, constrictor action with narrowing of capillaries and slowing of the blood stream to stasis; and third, reflex filling of the venous limb of the capillary loop, with the production of cyanosis. These findings with the addition of intravascular agglutination (blood sludge) are those found by the Clarks[2] and Knisely and associates[5] in their investigations on the reactions of the vascular tree to stress of various types.

Otfried Müller[12] and Parrisius[12] in biomicroscopic study of the capillary loops in individuals with both specific and physical allergies, including vasomotor rhinitis, urticaria, angioneurotic edema, acrocyanosis, Raynaud's disease, migraine, Ménière's disease and chronic simple glaucoma, found an invariable condition present which they termed the "spastic atonic state." In this condition, the arteriole goes into a spasm and the conjoined capillary loop becomes varicose and filled with reflux blood. Not until the majority of the capillary loops are abnormal, however, should the condition be classed as a disease. Krogh[12] described an independent nerve supply to arterioles and capillaries and noted a gradual disintegration of the normal coordination of arterioles and capillaries in acrocyanosis. Knisely[5] has confirmed the occurrence of spasm of the lock muscle of the metarteriole with the appearance of these same vascular changes in animals exposed to stress. Timonen and Zilliacus[12] were the first to note the presence of intravascular agglutination (blood sludge) in Ménière's disease. Fowler[3] confirmed their findings. He also stated that stimulation of cervical autonomic fibers could produce sludging of blood in the conjunctival vessels.

Brown[12] described the vasomotor neuroses as a large heterogenous group of conditions characterized by instability of the innervation of the vascular system. Among individuals with vasomotor neurosis the autonomic responses to various stimuli are abnormal; they may show abnormal sensitivity or abnormal reaction to certain preferred stimuli. Among the vasomotor neuroses Brown included acrocyanosis, Raynaud's disease, angioneurotic edema, migraine, and Ménière's disease. A study of the family trees of a number of families in a stable population showed that in vaso-

motor neurosis a congenital inherited tendency existed wherein the capillary bed reacted in an abnormal manner.

We find, therefore, that in the inner ear we have an autonomic structure favoring vascular disorders, that a stereotyped disorder of the peripheral capillary bed is invariably present in patients with Ménière's disease and the other vasomotor neuroses, and that an inherited congenital tendency for the capillary bed to react in an abnormal manner is found in the vasomotor neuroses, including Ménière's disease. This evidence suggests that Ménière's disease is one of a group of conditions called variously by different authors "the vasomotor neuroses," "autonomic disintegrations," "the spastic-atonic state of the capillaries," "physical allergy," and "the fatigue phase of general adaptation syndrome."

Evidence bearing on this subject is also derived from reports of treatment of Ménière's disease.

First: Mygind and Dederding,[12] basing their therapy on the hypothesis of Otfried Müller,[12] were able to report symptomatic relief obtained in 80 per cent of their patients with Ménière's disease.

Second: Dohlman,[12] Shambaugh[12] and others have demonstrated a specific sensitivity to foods in certain patients with Ménière's disease, and have been able to maintain them symptom free by eliminating the irritating substance.

Third: The fact that an attack or crisis of Ménière's disease can be controlled by large doses of atropine given intramuscularly, epinephrine given intravenously, or ephedrine and amphetamine given by mouth suggests that it is an instance of cholinergic preponderance. White and Smithwick[12] pointed out that atropine depresses the cholinergic fibers and that adrenalin stimulates the adrenergic fibers of the autonomic nervous system.

The vertiginous crisis of Ménière's disease would reasonably seem to depend on vasospasm affecting the nutrition of the nerve cells of the cristae ampullares and macula. Since the same arteriolar-capillary disorder is found in Ménière's disease as is present in Raynaud's disease, Lermoyez's comparison of the symptoms of Raynaud's disease to those of Ménière's disease seems apropos. He pointed out that the eighth nerve was a sensory nerve modified to subserve the functions of hearing and equilibrium. Irritation of a sensory nerve in Raynaud's disease produces pain; its depression is followed by anesthesia. The pain of the cochlear division is tinnitus (illusion of sound), while the pain of the vestibular nerve is vertigo (illusion of movement).

On consideration of the anatomy of the labyrinth, however, it would seem unreasonable to assume that the identical mechanism caused the vertiginous crisis and the slow fluctuations of hearing that do not occur synchronously with the attacks of vertigo. Both the macula and the cristae receive their nutrition through end arteries. The organ of Corti, on the other hand, draws its nutrition from the endolymph. This arrangement appears to favor the sudden appearance and departure of the equilibrial symptoms and the slow development and departure of the cochlear signs. It is felt that the spastic-atonic state of the capillaries of the stria vascularis and other secretory areas of the endolymph would result in increased permeability of the capillary walls and the secretion of an endolymph of higher osmotic pressure, thus resulting in endolymphatic hypertension as well as an electrolyte imbalance. Talbott and Brown[12] found an increase in the serum potassium during attacks of Ménière's disease and suggested that this indicated

a loss of intracellular potassium rather than an increase of sodium ion in the perilymph. A decrease in the potassium content of the endolymph might, therefore, account for the loss of hearing. This is suggested by my own experience with diamox (2-acetylamino-1,3,4-thiadiazole-5-sulfonamide). Patients receiving diamox lost an average of 5 decibels of hearing per day as long as they were on the drug, with a return of hearing when the drug was withdrawn. It is known that the action of diamox is associated with elimination of potassium. These findings suggest, therefore, that the loss of hearing in Ménière's disease may be associated with depletion of the potassium content of the endolymph.

Several objections have been raised to the hypothesis that Ménière's disease is an instance of autonomic disintegration. Cannon[12] opposed the hypothesis that there could be such a clinical entity as autonomic disintegration or imbalance. He found that the sympathicoadrenal system was not essential to life and that animals completely deprived of it can lead a fairly normal existence under sheltered conditions, but under stress the lack of the sympathicoadrenal function becomes evident. Cannon found that such animals show no tendency toward autonomic imbalance, however. The peripheral vessels regain a certain degree of intrinsic vasomotor tone, but they may manifest an increased sensitivity to epinephrine. Cannon stated that there is insufficient evidence to support the hypothesis that the thoracolumbar and cranial divisions of the autonomic system are acting constantly in opposition to each other and that the result of such conflict is an equilibrium between the two which could become constantly disordered.

Rambo[8] recently restated these objections specifically in regard to the inner ear after complete isolation of the inner ear from either one of the competing systems by surgical denervation. This did not cause damage to the inner ear 10 to 60 days after operation as shown by histologic examination and a condition of autonomic imbalance did not develop. Rambo further objected that while there was no reason to doubt that autonomic fibers go to the vessels of the inner ear or that they may cause constriction or dilatation, the questions in his mind were: What degree of influence does the autonomic impulse have on these vessels, and can the autonomic system cause the vascular system to shut down sufficiently to cause ischemia? He stated that the constriction caused by stimulation of the autonomic system caused a narrowing of only 8 per cent in intracranial vessels as compared with a narrowing of 50 per cent which can be obtained in vessels of the skin. Since the internal auditory artery is an intracranial vessel, he thought it was reasonable to assume that this slight narrowing was not sufficient to cause vasomotor labyrinthine ischemia.

An answer to the first objection to the hypothesis of autonomic dysfunction proposed originally by Cannon and applied specifically to the inner ear by Rambo was given by Petersen when he pointed out that the autonomic system is not composed of the autonomic nervous system alone but is composed of three components mentioned previously in this paper. Therefore, by the operation of autonomic denervation the action of the autonomic system on the inner ear is not destroyed. In addition, it might be pointed out that experiments such as those done by Cannon[12] and Rambo[8] were done on presumably normal animals. Therefore, their findings do not seem applicable to a group of human beings with abnormal autonomic reactions to which those patients with Ménière's disease have been shown to belong.

The second objection of Rambo,[8] namely, that constriction in the intracranial vessels is insufficient to produce ischemia in such a structure as the labyrinth of the human being, would seem to be controverted by the observation that intravascular agglutination (blood sludge) also occurs as the result of autonomic action. Knisely[4] pointed out that this factor in itself could readily account for intracranial anoxia, and he further pointed out that according to Poiseuille's law,[7] the flow through a tube, such as those composing the peripheral vascular bed, varies directly as the fourth power of the diameter, so that a seemingly minor constriction of a vessel might produce a major obstruction to blood flow even in the absence of "blood sludge."

Lempert and associates[6] have recently suggested that the presence of certain vesicles in the epithelial lining of the ductus cochlearis is probably due to a virus infection, and that the discharge of their toxic contents into the lumen of the cochlear duct causes the symptoms of Ménière's disease.

In the first place, these vesicles have not been shown to occur in the cochlear portion of the ductus; therefore, the cardinal cochlear symptoms are not accounted for by the hypothesis. Secondly, Seymour[10,11] found that the vesicles described by Lempert and his associates[6] are present in all normal and pathologic material studied. He concluded that they could not be of significance in Ménière's disease. Seymour[10,11] was of the opinion that these are secreting structures responsible for the high potassium content of the endolymph.

A review of the evidence, therefore, suggests that Ménière's disease is an instance of autonomic disintegration or imbalance, particularly cholinergic overactivity.

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PATHOLOGY

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THE term "Ménière's disease" has been given different interpretations during the years since Ménière first described the classical symptoms.

Ménière described a clinical entity of recurring spells of vertigo associated with deafness and tinnitus which fluctuated in severity from time to time. The causes of the disease were not known.

The term "Ménière's disease" was later used in Politzer's book in reference to the single apoplectic attack of vertigo, deafness and tinnitus in a previously healthy ear. This type of attack was interpreted as being due, at least in many cases, to a vascular accident. The pathologic proof was lacking. This type of acute inner ear disturbance obviously had no relation to the chronic syndrome described by Ménière.

During the past three decades the term "Ménière's disease" has been applied to the clinical syndrome originally described by Ménière. This syndrome bears no relation to the acute disease of the inner ear found in Ménière's famous case, in which exudate was found in the inner ear.

The diagnosis of Ménière's disease is made mainly on the basis of the auditory findings, since these are the constant features of the disease. The dizzy spells may, however, be the patient's main concern.

The diagnosis of Ménière's disease cannot be applied to acute apoplectic inner-ear disease, such as may be caused by vascular accident or by acute viral or toxic processes. The term cannot be applied to the single, or repeated, dizzy spell which occurs without auditory symptoms, nor can it be applied to postural vertigo.

In 1938, Hallpike and Cairns[2] reported the inner ear findings in two cases of Ménière's disease which had come to autopsy following section of the vestibular nerve. The presence of the dilatation of the endolymphatic spaces found by them has since been demonstrated to be a consistent finding in cases coming to autopsy in which the clinical characteristics were typical. It has also been found in a few cases in which the hearing has been impaired but which do not have a clear history of attacks of vertigo.

The following histopathologic inner ear findings are characteristic of cases reported to date:

A dilatation of the cochlear duct or hydrops (fig. 1). Ballooning outward of Reissner's membrane, which offers least resistance to increased pressure, at the expense of the perilymphatic space of the vestibular scala.

A similar dilatation of the saccule, in nearly all cases (fig. 2).

Localized distortions or dilatations at the junction of utricle and the various semicircular canals, in some cases. These localized dilatations or bulgings indicate the presence of weak or unsupported points in the walls of the utricle at these locations (figs. 3 and 4).

Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

FIG. 1—Microphotograph of midmodiolar section of the cochlea in a case of Ménière's disease. The dilatation of the cochlear duct is illustrated. Some degree of atrophy of the stria vascularis is visible at this magnification.

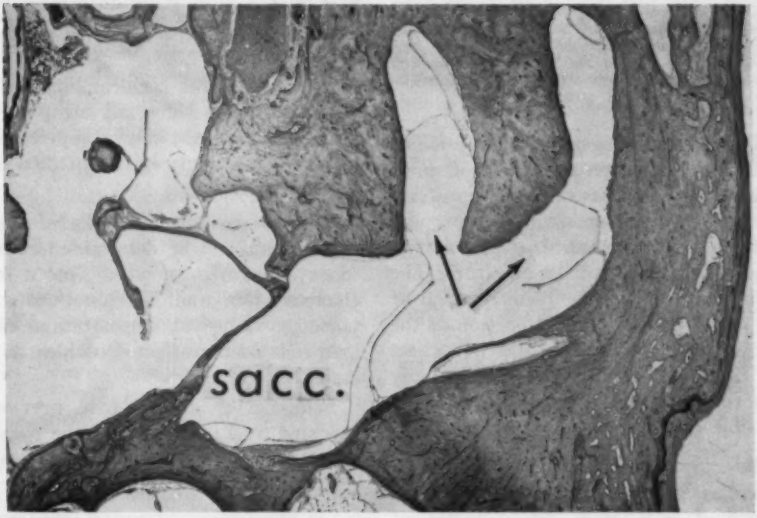

FIG. 2—Microphotograph of a section through the saccule, the small end of the horizontal semicircular canal and the common crus at the points where they enter the utricle. The saccule is grossly dilated, and there are herniations from the utricle at its junction with the semicircular canals extending into the perilymphatic spaces in the canals (arrows).

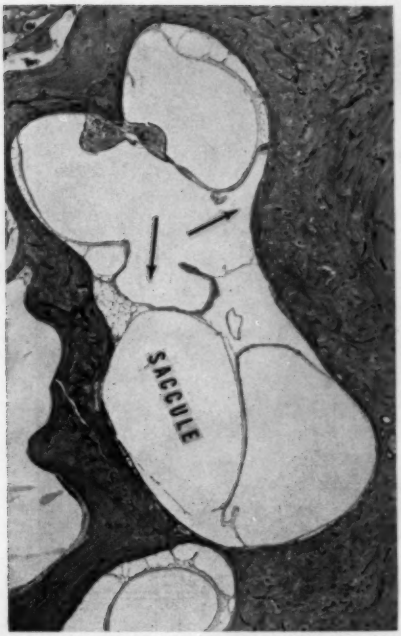

FIG. 3—Microphotograph of a vertical section through the superior and horizontal semicircular canals at the point where the ampulla of the horizontal canal opens into the utricle. Distortions or herniations of the weaker areas in the walls of the utricle are indicated by arrows.

FIG. 4—Microphotograph of a vertical section through the ampullas of the superior, horizontal and inferior semicircular canals showing a portion of the macula of the utricle. Herniations or distortions which have occurred at the weak points in the utricular walls are indicated by arrows. These localized weakened areas are located at the junction of the various canals with the utricle.

The cause of the increased volume of endolymph has been the object of much discussion. The prevailing impression that the saccus endolymphaticus was concerned with removal of endolymph directed attention to that structure. The demonstration that complete removal of the saccus and the dilated portion of the ductus endolymphaticus[3] did not affect the volume of endolymph ruled out any abnormality of these structures as a possible cause of the hydrops.

Attention was directed to the stria vascularis, which is supposedly the source of endolymph. Some degree of atrophy of the stria has been demonstrated in the presence of advanced hydrops,[4] but whether this is primary or secondary to the hydrops is a question.

The peripheral cochlear neuron has not appeared to show any atrophy. The ganglion cells have shown approximately the same density in the affected as in the normal ear.

The number of hair cells in Corti's organ could not be determined in most cases because of the postmortem changes. Dix and Hallpike[1] have reported evidence of degeneration in the hair cells of the affected cochlea in one case.

Schuknecht[6] in one case previously reported by Lindsay found the hair cell count in the diseased and in the healthy ear to show no significant difference.

On the basis of clinical experience, no significant difference in hair cell count should be expected in early cases, since the hearing often returns to normal from a threshold as depressed as

35 decibels. However, in later stages changes might be anticipated.

The explanation of the hearing loss, at first thought by Mygind[5] to be an inner ear conduction loss, would appear to be directed toward the sensory cells because of the recruitment, which is characteristic.

The best explanation for the occurrence of the hydrops appears to be that a disturbance of the secretory apparatus allows nondiffusable molecules to enter the endolymph. An elevation of osmotic pressure follows with a resulting attraction of fluid through the membranes and a dilatation, or hydrops, of the endolymphatic spaces.

Temporary fluctuations in auditory threshold, recruitment and hypersensitivity to loud sounds might be explained as a toxic or metabolic disturbance affecting the hair cells. Changes of this type would not be detectable by present histologic techniques. The explanation for the permanent loss which eventually occurs is not completely evident from histological findings. Nor is it settled why the low tones are affected sooner than the high tones in early stages of the disease.

The disturbance of secretion of endolymph is now thought to be due to a local imbalance in the autonomic nervous control, a theory which may have some support from the clinical observation that unusual nervous tension seems to cause a temporary increase of symptoms.

The dizzy spells, which are less predictable in their occurrence and usually follow no definite pattern, are probably not due to the same process as the depression of hearing and increase in tinnitus. Instead of a toxic effect on the sensory cells of the crista, a more probable explanation is suggested by the localized distortions of the walls at the points where the utricle joins the ampullas. Such a distortion, when it occurs, might interfere with the mechanical action of the cupula and cause an imbalance between the canal and its mate of the opposite side, causing immediate vertigo. A mechanical factor such as this would seem a more probable explanation for the unpredictable occurrence of the dizzy spells than would a toxic or chemical disturbance. If the latter were at fault, one might expect a unilateral disturbance of function and dizziness with every fluctuation in the auditory symptoms.

This explanation for the dizzy spell would also explain why one particular canal might be the origin of the disturbance. This was indicated in one patient observed by the writer; a vertical nystagmus occurred during an acute episode of vertigo in Ménière's disease. This clear-cut vertical nystagmus has been observed in only one other proved disturbance of the inner ear in the writer's experience. It occurred in a case of fistula of the anterior semicircular canal due to cholesteatoma.

The histopathologic changes at the ampullas in some cases of Ménière's disease give a reasonable explanation for possible involvement of one canal only during an acute attack of vertigo.

The diagnosis of hydrops of the labyrinth, or Ménière's disease, can only be made with certainty when the attacks of vertigo and the typical auditory disturbances occur together. It can be made with some assurance in the presence of auditory disturbances alone if they are characteristic. The diagnosis cannot be made, however, on the basis of dizzy spells or of postural vertigo alone, although in rare cases dizzy spells have preceded the auditory disturbances by as much as several months.

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DIAGNOSIS

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I WANT to make it clear at the outset that we are talking about Ménières disease as it was defined by Dr. Lindsay and Dr. Williams. The characteristics of this disease are, first, perceptive deafness; second, tinnitus; and third, dizziness.

I would like to take up these symptoms separately and enlarge upon them.

First, dizziness. I think it is important to question the person about his dizziness. We see, as Dr. Lindsay has emphasized, many patients complaining of dizziness who do not have Ménière's disease. In Ménière's disease there is true vertigo, characterized by fairly sudden onset with a very marked feeling of rotation or of the room going around. It is nearly always accompanied by nausea and vomiting, and by sweating; it is quite prostrating, particularly in the severe attack. I emphasize that, because so often we see patients with a tentative diagnosis of Ménière's disease, or Ménière's syndrome, who complain of dizziness, but when you question them, they describe it more as a "blacking out" than really as a "turning." They don't feel that they are moving or that objects are moving, but they feel that sinking feeling—a general blacking out—which one has when he stands up quickly after his first cigarette in the morning. I think it is most important to get that history.

Second, let's consider tinnitus for a moment. Tinnitus is a characteristic of most of these cases. The complaint is of two varieties. The one that is the most bothersome is a low-pitched roaring that is constantly present, and which is likened by most patients to listening to a sea shell. "Doctor, it sounds like when you are listening to a sea shell," is a very common remark. If they have never listened to a sea shell, they tell you that the sound is like that of a wind in the forest or like the hum heard near a telephone pole when the wind is blowing. They also complain of a high-pitched tinnitus occurring every now and then, but this does not really bother them. This high-pitched tinnitus is a very inconstant thing; but the low-pitched roar is always present and is very bothersome.

Their tinnitus may increase or decrease with an approaching attack of dizziness. Many people have told me that they know when they are going to be dizzy because the tinnitus builds up and up, and then they get dizzy, or they may say that suddenly everything gets better and then they get dizzy.

These attacks of dizziness and of tinnitus may be periodic and may be separated by a day, a week, a year or ten years. One of the difficulties of the diagnosis of this disease is that there are such long periods of remission.

Dr. Lindsay emphasized that now diagnosis is chiefly based on audiometric findings, and I would like to emphasize

Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

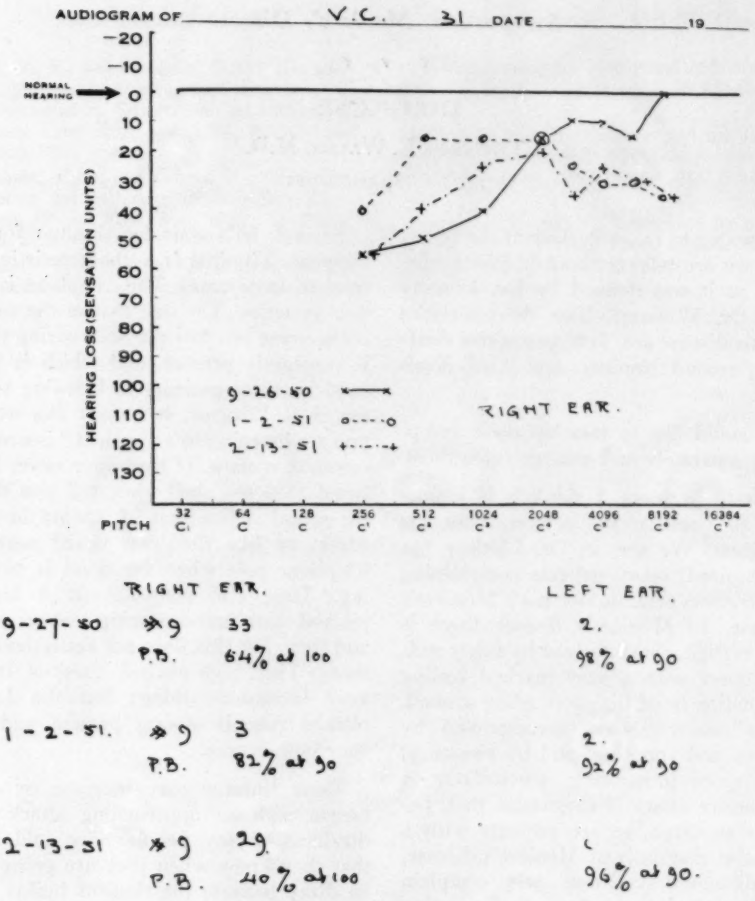

FIGURE 1.

that, too, because sometimes we have patients with bilateral hydrops who do not complain of dizziness but do complain of the characteristic deafness that is found in all these patients.

Part of the hearing test of a man who was seen in our clinic is shown in figure 1. One of the things I want you to notice is the fluctuation in deafness. This was mentioned, I think, by Dr. Lindsay. Patients with Ménière's disease hear very well some times and very poorly at other times, and they may show a swing of 20, 30 or 40 decibels from time to time in their pure tone audiograms.

We have found that in early cases of this disease, the common shape of the audiogram is an upward slope in the high tones and a greater loss in the low tones. As the disease progresses, the audiogram tends as a rule to flatten out throughout the scale, and if the disease has been present for a long time or if there is some presbycusis with it, there

is a high tone loss. So the audiogram shows first an upslope, then a flat curve, and then a general downslope, but the hearing acuity varies from time to time.

With the speech test, we have a characteristic finding of relatively low threshold loss for speech with a great loss in discrimination, and again this will fluctuate. In September 1950, our patient had a 33-decibel threshold loss for speech in his affected ear, with 54 per cent discrimination (fig. 1). When tested in January 1951, his hearing was to all intents and purposes normal. Then on February 13, 1951, he again had a 29-decibel threshold loss for speech, with a 40 per cent discrimination.

I emphasize this relation between the threshold loss and the discrimination score because we thought that this was a diagnostic point and one of the characteristics of cochlear lesions. We rather stuck our necks out in making this differential point in diagnosis between Ménière's disease, for example, and a central lesion. Usually, when a central lesion is present, the threshold loss is great, with a comparatively good discrimination score. This does not hold true in all cases, but this particular finding of a large discrimination loss with a relatively low threshold loss for speech does hold good in all the cases of Ménière's disease that we have seen.

Another factor is recruitment. All of the patients with Ménière's disease have recruitment. Using a loudness balance test, you will find complete recruitment in the affected ear, and I think that is an important diagnostic point (fig. 2).

One of our findings—a symptom of which these patients complain bitterly—is diplacusis, a difference in the perception of pure tones in the two ears. You will notice in the case illustrated by figure 3 that at neither the 500 cycle tone nor the 1,000 cycle tone is there a very great difference, but at 2,000 and 4,000 cycles he matches 4,000 with 2,890 and 2,000 with 1,880. Just think for a moment what this means to somebody who is musical and you will understand what trouble these patients have with their diplacusis. They are listening to complete discord all the time. Sometimes they will tell you that although they cannot notice any great pitch difference, the sound in the affected ear is fuzzy. They will also tell you that although they hear, they don't understand the words.

In the case that is illustrated in figure 2, the recruitment went over the line—a hyper-recruitment. This is not uncommon. In this particular instance, the diplacusis affected the lower tones rather than the higher ones. I mention this because if you try to find out about diplacusis with tuning forks, and if you use only one fork, you may be disappointed. You must go through the whole scale with tuning forks.

There are one or two points that I would like to make about other tests. For example, I find that the caloric tests give me very little information in many of these cases. A patient with hydrops may give perfectly equal responses to the caloric test on the two sides. On the other hand, in some instances there may be a depressed response on the side of the affected ear, so-called canal paresis. If the Cawthorne method is used, the tests of some patients will indicate a paresis on one side or a directional preponderance at first to the affected side and a little later to the unaffected ear, then gradually as time goes on both ears may respond poorly to caloric tests. We have seen that many times.

Is the caloric test of any value? I think it is of value in estimating what the patient means by dizziness, because those with true vertigo will say that the reaction they get from douching the ear with cold water is exactly the reaction,

DIPLACUSIS TESTS.

REFERENCE EAR. [LEFT]	MATCHED EAR. [RIGHT]
500 cps	220 cps
1000 cps	620 cps
2000 cps	2090 cps
4000 cps	3940 cps.

RECRUITMENT TESTS.

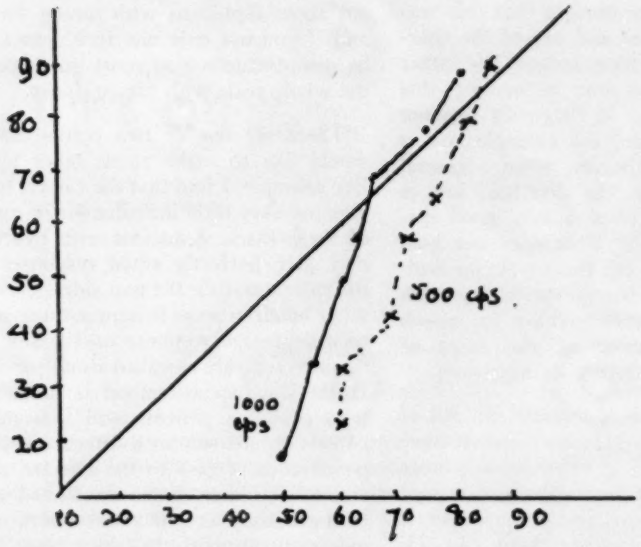

FIGURE 2.

but not quite as severe, that they get with their attacks, whereas the patient who has the sinking feeling that one has to differentiate from true vertigo will say, "No, I am dizzy this time. This is not what I usually feel." It is a nice diagnostic point in making up your mind whether the patient really has true vertigo or not.

I find that a caloric test is also useful in estimating what might be the reaction if one has to destroy an ear. Patients with depressed responses to the caloric test have very much less reaction post-

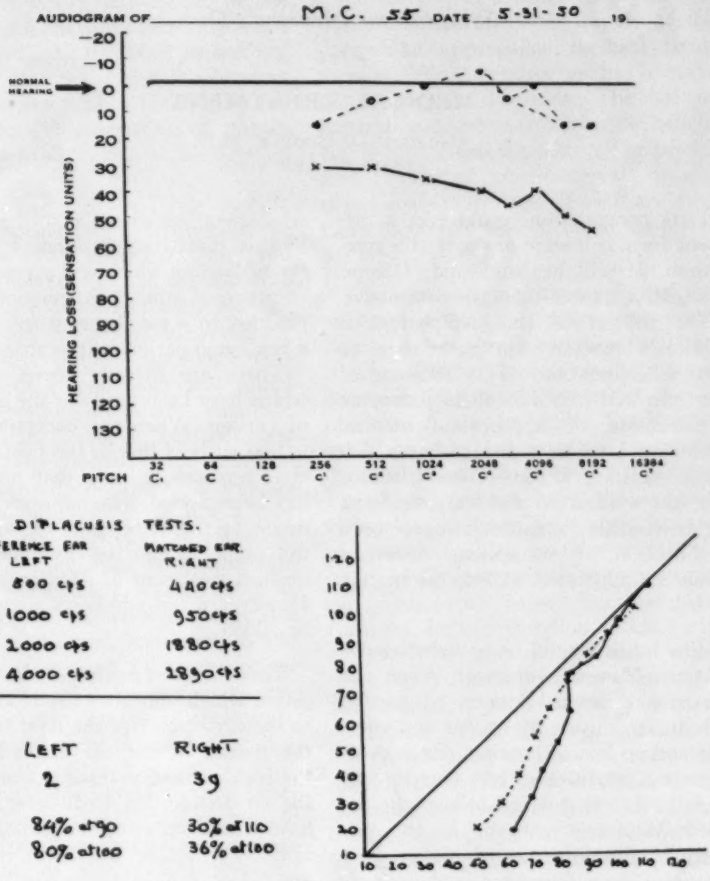

FIGURE 3.

operatively than those with relatively normal caloric responses in the two ears.

To summarize then, we are dealing here with a condition that is characterized by a perceptive deafness which fluctuates, which may be normal at one time, may drop tremendously the next time, and may come up again. It is difficult to estimate the effectiveness of treatment because of this fluctuation. Dizzy spells which are true aural vertigo usually are accompanied by nausea, vomiting and sweating. These dizzy spells are incapacitating. They may last varying lengths of time and there may be variable intervals between the times.

Tinnitus, which is characteristic of Ménière's disease, is a low-pitched roaring tinnitus which may be complicated by a high-pitched hum which does not bother the patient. The tinnitus may also vary with the onset of the attack, getting better in some cases, but getting much worse in others.

MEDICAL TREATMENT

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THIS presentation would take a different form if it were not part of a symposium. It will be brief and, I hope, provocative rather than comprehensive.

The subject of this symposium is Ménière's disease, but there are so many interpretations of the meaning of this term that it is difficult to formulate a discussion of appropriate medical treatment. Ménière's disease has a different meaning to almost every author who has written on the subject. Some day, a national committee to agree on a classification of vertiginous disorders should be appointed to help us in this regard.

How much should be included under the term Ménière's disease? When one talks about isolated attacks of vertigo with no accompanying nausea and vomiting and no loss of hearing, one is dealing with a condition of less severity and intensity than that which follows the so-called Ménière's pattern. Is this instance of simple vertigo, however, just a stage of, or a difference in degree of, Ménière's disease? This may be; I really do not know. A true hydrops of the labyrinth with all the classical symptomatology and the insistent recurrence of attacks despite all medication seems to be a distinct entity. Its persistence to the final stage of almost total loss of hearing and balance function in the affected ear or ears is unique. I personally am not satisfied that we have the reason why some of these disturbances end in this disastrous fashion. I know of no medication which will prevent the recurrence of attacks. Alleviation is often credited to some drugs when, in truth, a remission period is the cause of relief.

There are literally scores of drugs which have been used for the alleviation of vertigo. When one encounters a situation such as this in the field of medicine, one can be sure that no panacea has been found. Having stated this, it might be the better part of wisdom, at this point, to end the discussion of the medical treatment of Ménière's disease. However, a few additional words should be added.

There is good evidence that any condition which will alter the blood supply to the ear or change the fluid balance in the tissues of the ear can affect both the cochlear and vestibular functions of the ear. In addition, toxic substances can have a marked effect on otologic function. Whether or not these conditions are the etiological factors in Ménière's disease, I am not prepared to say, but recognition of these alterants of function opens up avenues of approach to medical treatment which can be helpful if not curative.

What are some of the outstanding causes of changes in blood supply and fluid balance, and of toxemia affecting the ears? Some of them are foci of infection, syphilis, drugs and tobacco. Toxemias, in my experience, are the least common etiologic factors in vestibular dysfunction.

Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

The major effort here should be the elimination of the offender, and while this can hardly be classified as medical treatment, it comes under the heading of medical management. Mention of the necessity for the elimination of certain drugs is too well known to be detailed here.

Allergy is certainly a frequent cause of disorders of the inner ear. One could cite many illustrations, but the best that I know is one concerned with the woman who was matron-of-honor at my own wedding. Subject to severe vertigo, she kept a food diary and found that just preceding her attacks, chocolate was a constant factor in her diet. She stopped taking chocolate, and her vertigo disappeared. Because she was an inquisitive soul, and in reality a true scientist, after a period of freedom from attacks, she went on a chocolate spree and immediately became dizzy as before. It is well known that allergy is a potent cause of fluid imbalance in tissues. If it is evident, by means of an allergic survey, that the patient is sensitive to certain allergens, allergic management is definitely in order.

The electrolytes have a definite bearing on fluid retention. The most notable example is fluid retention due to excessive amounts of sodium. Restriction of the intake of sodium in the diet has proved to be of value in those cases in which retention of fluid is a major factor. The use of a powerful diuretic is indicated if there is evidence of fluid retention.

Endocrine disorders are potent sources of altered blood supply and fluid balance. Careful diagnostic work toward detecting the offending gland, or glands, is in order if there is suspicion that there is metabolic disorder. Treatment with the appropriate drug can be beneficial.

Thrombosis and hemorrhage are certainly alterants of blood supply of the ears. The appropriate medical treatment is difficult because one has to make an assumptive diagnosis. The use of heparin and dicumarol may be beneficial if thrombosis is present. The proper management of arteriosclerosis or atherosclerosis is in order if they are etiologic factors in altered blood supply to the ear.

One sees an increasing number of discussions of the effect which vasospastic states have on inner ear disease. There is some disagreement as to the manner in which these conditions affect the inner ear. A careful study by Rambo[2] would indicate that there are no sympathetic fibers which go to the inner ear. Passe[1] and others have the opposite viewpoint; at least, they are advocates of treatment which would eliminate the effect of the sympathetic system on the ear. This, with some, has taken the form of stellate ganglion block (with novocain) on the affected side, which results in a flushing of the skin on the side treated, together with a Horner's syndrome. What effect this treatment has on the inner ear has not been definitely proved. Those who advocate stellate ganglion block and, if this is successful, subsequent surgical removal of the ganglion, write somewhat enthusiastically about their results. It is conceivable that if the condition is due to vasospasm with resultant anoxemia and the treatment quickly improves circulation, it is a treatment of distinct worth. This has yet to be proved, and it will be a long time before adequate clinical evidence can be collected. Rarely does an otologist have the opportunity to see a patient with vertigo and accompanying hearing loss within the first few hours of the onset of symptoms. These cases are much more likely to be handled by the general practitioner and referred to the otologist at a later date when ir-

reversible changes have taken place. It is inconceivable that the treatment just mentioned can be of any real benefit once irreversible changes have occurred. An improvement in hearing amounting to five or ten decibels has been reported as resulting from the use of this type of treatment in longstanding cases. This is worthless evidence.

If one customarily takes a careful history, one cannot help but be impressed by the fact that worry, anxieties, frustrations, disappointments, and the like, often precede vertiginous attacks. I cite one instance: A mother, this spring and summer, had four severe spells of vertigo accompanied by nausea, vomiting, some tinnitis, and a slight hearing loss, each lasting several hours. Each attack followed a temporary farewell to her son who had been inducted in the Army. The first one occurred when she got the news that he was drafted, the second when he actually joined the Armed Forces, the third when he went to a distant camp, and the fourth when he was sent overseas. She had had no other dizzy attacks in all her life. Many other instances could be cited, but this is a factor well known to all. In such an instance, one does not give a drug to make the patient forget the cause of the upset; but a conference with the patient should follow such a discovery, and the relationship between the incident and the result should be pointed out. This can well be classified as medical treatment of Ménière's disease, though no medication has been given. One might argue that such cases do not go on to severe deafness and severe loss of labyrinthine function and thus should not be classified as Ménière's disease. This is not always so. On the afternoon of the day this paper was written, a woman who had seen me three years previously visited my office. She came to me then complaining of vertigo, nausea and vomiting, loss of hearing and tinnitis in one ear. Her symptoms had started just after she and her husband had purchased a restaurant and had tried to manage it themselves. He had lost one arm and could do little of the manual work, and she, a sixty-seven year old woman, had tried to cook, wait on table, and do the cleaning of the establishment. The demands were beyond her capabilities. It may well be argued that her symptoms would have developed whether or not the purchase of the restaurant and the subsequent events had transpired. However, she never had had any vertigo prior to this stress situation. It is interesting that on her second visit, the day this paper was written, she came to me complaining of severe tinnitis. She no longer had any vertigo. Examination showed a 60 decibel loss of hearing, with no discrimination score obtainable and an almost total loss of labyrinthine function — the end picture of a true Ménière's disease.

Symptomatic medication has its advocates. Sedation has been used by many, and some are enthusiastic about it. I have found that if one explains to the patient what vertigo is, that it is a terrifying symptom yet does not represent imminent death or severe injury to the health, the need for sedation is much less than if one dismisses the patient without this explanation. Dramamine has been widely publicized and advocated, but in true labyrinthine disease, in my hands, its oral administration has not been as effective as the advertisements would lead one to believe. Intravenous or intramuscular injections of this drug, or similar drugs, is more effective for the relief of the immediate symptoms. Vasodilators have been used by all of us and have proved to be beneficial in some instances and worthless in others. Some of the most enthusiastic supporters of this type of medication write glowingly of its effect and of sub-

sequent cures, but they fail to offer supporting audiograms and calorigrams.

One of the reasons why medical treatment for Ménière's disease is as ineffectual as it is, is that we are not as clever as we should be in our diagnostic endeavors. If one could isolate and eliminate the significant causative or abetting factors in every case, the duration of the symptomatology would be shortened. The need for diagnostic acumen in these conditions is greater than in any other area in otolaryngology. The fact that such patients frequently visit three or four otolaryngologists is testimony to this fact. Symptomatic medical treatment alone is of little worth in this field. Even when some careful diagnostic work has taken place, medical therapeutic efforts are often unrewarding. We should be very careful not to take credit for medical treatment when relief from distress may be due to a remission.

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SURGICAL TREATMENT

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THE primary indication for surgical intervention in Ménière's disease is the failure of adequate medical treatment to prevent acute episodes of vertigo of sufficient severity and frequency that they interfere with the ability of the patient to live an essentially normal life. The "fear complex," which the occasional patient exhibits, might be considered a secondary criterion for operation, since patients presenting this symptom live in such mortal fear of an impending attack of disabling vertigo that they do not deem it safe to return to an active life even though the medical therapy they are receiving at the time appears to be beneficial.

The surgical management of Ménière's disease has received considerable attention from neurosurgeons and otologists through the years, and as a result, a number of operations have been developed to alleviate this condition when medical therapy has failed. All but three of these operations are fundamentally alike, in that their intent is to disrupt the flow of neurogenic impulses between the vestibular end organs and the vestibular nuclei in order to abolish the vertiginous attacks.

Otologists have been responsible for the majority of these operations and have effected the desired disruption of the vestibular pathway by destroying the vestibular end organs. The manner in which the destruction was accomplished, however, varied with the procedure. Wright[17] and Mollison[11] injected absolute alcohol into the perilabyrinthine fluid: the former, through the tympanic membrane and the oval window; the latter, through a fistula in the horizontal semicircular canal. Destruction of the labyrinthine end organs was achieved by Cawthorne[2] by avulsing the horizontal semicircular canal. Goodyear[7] did not believe that it was necessary to avulse the membranous semicircular canal to effect destruction, for he accomplished the desired result by sweeping a dental explorer back and forth in the vestibule through a fistula in the ampullary end of the horizontal semicircular canal. An electrocoagulating current may be utilized to destroy the vestibular end organs through a fistula in either the horizontal semicircular canal, as practiced by Day,[4] or the superior semicircular canal, as advocated by Putnam.[14] Lempert[9] has described a technique in which the destruction of the vestibular end organs and the organ of Corti is accomplished by fibrosis as a result of removing the footplate of the stapes and destroying the round window. All of these procedures, if adequately performed, result not only in loss of the vestibular response but, as a rule, also produce total loss of hearing in the ear operated upon.

In an effort to preserve what hearing the patient might have in the involved ear, Portmann,[13] Passe[12] and Rosen[16] devised operations intended to stabilize the intralabyrinthine hydrodynamics in

Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

order to effect relief from the intractable vertigo due to labyrinthine hydrops. Portmann's operation, reported in 1927, is said to accomplish this through surgical attack upon the endolymphatic sac. Passe, in 1948, described an operation in which the stellate ganglion was removed and the vertebral artery ligated to effect the stabilization. By 1951, however, he had abandoned this procedure and advocated dorsal sympathectomy of the second and third ganglia. Rosen claimed that relief from the attacks of vertigo may be obtained while preserving the hearing through section of the chorda tympani nerve within the tympanic cavity. Frenckner,[6] more recently, has described a surgical procedure in which he accomplished a tamponade of the vestibule and ampullar portions of the membranous horizontal semicircular canal with small pieces of cartilage after fenestration. This is intended to destroy most of the vestibular function without injuring the membranous labyrinth while preserving such hearing as may have been present preoperatively. In addition, he performed tympanosympathectomy, section of the chorda tympani nerve and tenotomy of the tensor tympani and stapedius muscle tendons in an effort to relieve the tinnitus.

While otologists have been largely responsible for the foregoing procedures, the neurosurgeons have not been idle. Frazier,[5] in 1912, reported relief from persistent aural vertigo through intracranial section of the eighth cranial nerve. Complete section of the eighth nerve just after its emergence from the internal auditory meatus not only effectively disrupts the nerve pathway between the vestibular end organs and the vestibular neuclei but also results in total and irreversible loss of hearing. Dandy,[3] as well as other neurosurgeons, employed this procedure for the surgical management of Ménière's disease in a large number of cases when medical treatment failed. McKenzie,[10] in 1936, modified the operation by confining the section of the eighth nerve to its anterior three quarters so that the nerve fibers from the vestibular end organs were divided while those from the cochlea were left relatively intact. Thus the preoperative hearing level was conserved. This procedure was adopted by Dandy and is now considered by neurosurgeons to be the operation of choice for the surgical management of Ménière's disease when the hearing in the affected ear is at a serviceable level.

The real value of any surgical procedure can be assessed only after it has been employed in a comparatively large group of representative cases in which the postoperative interval is of sufficient duration to permit a conclusion as to whether or not the desired objective was achieved. Furthermore, it is important when evaluating an operation to obtain a broad over-all picture with respect to the results obtained, technical difficulties and complications encountered, the average duration of hospitalization and the period of economic incapacitation experienced by the patient as the result of the operation. This can be obtained only by careful consideration of the experiences of surgeons other than the originator with the operation.

Ideally, the surgical management of Ménière's disease should effectively relieve the patient of vertigo and tinnitus without affecting the hearing. This latter point is debatable when the disease is thought to be unilateral and the hearing function of the affected ear has deteriorated to such an extent that it is no longer serviceable and, as is frequently the case, is distorted. It is my opinion that no attempt should be made to preserve the hearing of the affected ear when it is not useful if the hearing in the opposite ear is at a comparatively good serviceable level. However, since it has been estimated that approx-

imately 10 per cent of the cases exhibit bilateral involvement, it is not advisable to destroy the remaining cochlear function in the more involved ear when the hearing bilaterally is poor, unless the symptoms can definitely be ascribed to the ear with the poorer function.

All of the operations previously mentioned have been reported by their originators to be successful in alleviating the vertiginous attacks characterizing Ménière's disease. Not all, however, have proved to be equally as successful in the hands of others. Some are relatively difficult technically, the destructive agent is difficult to control adequately in others, while for some the burden of proof remains in their efficacy in preventing the vertiginous attacks. The primary purpose of all these procedures has been to prevent the acute episodes of vertigo. I believe that at the present time this is most consistently accomplished by resection of the eighth nerve and destruction of the membranous horizontal semicircular canal and adjacent utricle.

Until recent years the surgical procedure of choice for the treatment of Ménière's disease in this country has been resection of the eighth nerve. Our experience at the Lahey Clinic with either total or differential section of the eighth nerve over the past twenty years has been satisfactory. Complete division of the eighth nerve in the patients who presented the typical picture of Ménière's disease was uniformly successful in relieving the patients of the acute episodes of vertigo. The majority of patients, however, were subjected to partial section of the eighth nerve, and although occasional failures to obtain relief from the acute episodes of vertigo were observed, they were by no means in sufficient number to justify the opinion that this operation is not of value in relieving the vertigo and preserving the hearing. This is in agreement with the follow-up studies of 408 patients at Johns Hopkins University by Green and Douglass,[8] and of 53 patients by Barber and Ireland[1] at the University of Toronto.

It should not be expected that partial section of the eighth nerve would be as effective in as high a percentage of cases as total section in preventing further vertiginous attacks, for Rasmussen[15] has demonstrated that a considerable number of the vestibular fibers are intermixed with the cochlear fibers of the eighth nerve. Consequently, since the extent of the transection of the nerve is empirical and, undoubtedly, varies from case to case and operator to operator, failure of the operation should be expected on occasion. This should not detract from its value, however, for it is the only operation available today for the surgical management of Ménière's disease that permits preservation of serviceable preoperative hearing and abolishment of the attacks of vertigo in a high percentage of cases.

Intracranial section of the eighth nerve, whether the nerve is completely or partially divided, is a major neurosurgical procedure. Although technically difficult as compared to labyrinthine surgery for Ménière's disease, it is a relatively safe procedure when performed by experienced neurosurgeons. The greatest criticism of it is a comparative one. As previously stated, this operation is a major surgical procedure entailing entry into the cranial cavity, with the associated risks of such an operation. It is true that significant postoperative complications do occur, but these are infrequent when the neurosurgeon is well trained and experienced. However, minor postoperative complications and sequelae occur commonly. In addition, the period of hospitalization is appreciably longer and the period of economic incapacitation fol-

lowing discharge from the hospital is prolonged as compared to that following the labyrinthine operation for Ménière's disease.

In comparison to intracranial section of the eighth nerve, labyrinthine surgery for Ménière's disease is relatively simple and without risk when performed by an experienced otologist. Destructive labyrinthectomy is as effective in relieving vertigo in unilateral disease as complete section of the eighth nerve. Electrocoagulation of the membranous labyrinth, commonly known as the Day operation in honor of the otologist who perfected it, consists of performing a partial simple mastoidectomy to expose the bony horizontal semicircular canal adequately and, thereafter, electrocoagulating the membranous horizontal semicircular canal and utricle with a fine electrode through a fistula in the bony horizontal semicircular canal. Cawthorne has devised another surgical procedure which is identical to the Day operation in every respect except that, instead of utilizing an electrocoagulating current to effect destruction of the vestibular end organs, the membranous horizontal semicircular canal is avulsed.

With magnification such as that afforded by a binocular loupe, the membranous semicircular canal can be removed satisfactorily with a small forceps, but I have found that the avulsion is greatly facilitated by the use of a medium-sized barbed dental broach rather than a forceps. If the tip of a fine or medium-sized barbed dental broach is bent slightly to conform to the curvature of the anterior wall of the vestibule, the broach can be inserted into the depths of the vestibule. It is then twirled in one direction between the finger tips, and the contents of the vestibule as well as the membranous horizontal semicircular canal are avulsed when it is withdrawn. Day, in his more recent cases, has employed a dental broach before electrocoagulating the sensory nerve endings in the vestibule because he believes it ensures a smoother, shorter period of convalescence. I have no doubt that the contents of the vestibule can be destroyed by sweeping the tip of a small dental explorer back and forth in the vestibule, as described by Goodyear, but my own nature is such that I prefer to observe that which I have removed and to be in a position to send the specimen to the pathologist, should I deem it advisable (fig. 1). In addition, I prefer to ensure closure of the fistula in the ampullary end of the bony horizontal canal by packing it with a mixture of bone wax and bone dust rather than to take a chance that effective closure will occur spontaneously.

FIG. 1—Surgical specimen. Membranous horizontal semicircular canal removed with dental broach.

These operations have been performed by a number of otologists during the past several years on a large number of patients without reported mortality and with practically universal beneficial results with respect to the vertiginous attacks. The hearing has been totally destroyed in the affected ear of all patients on whom the Cawthorne operation has been employed, and this has also been true of those patients upon whom Goodyear has operated without removing any portion of the membranous labyrinth. Day, in his ear-

lier cases, reported an occasional patient who retained his hearing and was free of vertigo. He was unable either to explain this phenomenon satisfactorily or to reproduce it at will. He now believes that it is undesirable to make any effort to preserve the hearing, and all patients whom he has operated on in recent years demonstrate a total loss of hearing in the ear on which the operation was performed.

Destructive labyrinthectomy should be reserved for those patients whose hearing in the affected ear is no longer at a useful level. Since the majority of patients afflicted with Ménière's disease have hearing below a serviceable level in the affected ear by the time they are seen by the otologist, the fact that the hearing is totally destroyed following operation is of minor importance. As a matter of fact, the destruction of the remaining hearing in the affected ear may be of benefit in that it eliminates the distortion of hearing which is frequently of annoyance to the patient.

My experience with the Day and Cawthorne operations has been eminently satisfactory, and I have done approximately an equal number of both. Vertigo has been completely abolished in all but two patients. In one, a Day operation was performed with considerable trepidation because I did not believe that the patient had typical Ménière's disease. The result obtained justified the doubt and emphasized the importance of a correct diagnosis if optimal results are to be obtained. The other patient, who had bilateral Ménière's disease and whose acute episodes of vertigo persisted in spite of a differential section of the eighth nerve, was subjected to a Cawthorne operation on the same side as the nerve section. Although his vertiginous attacks were not completely relieved, they were improved to such an extent that, with medical treatment, he was able to be employed.

The hearing in the operated ear, which in no instance had been at a serviceable level before operation, was totally lost in all patients. The effect of these operations upon the tinnitus, however, is unpredictable. In the majority of the patients the tinnitus was either relieved or markedly improved, and in no instance did the patient consider it distressing even though it had been considered so before operation.

The average period of hospitalization for these operations is about one week, and most patients are able to return to work in less than a month. These are considerably shorter periods of hospitalization and convalescence than those of patients subjected to section of the eighth nerve whose case histories I reviewed several years ago.

The only postoperative complication was temporary facial paralysis, which occurred in two patients following electrocoagulation of the labyrinth. This complication is always potentially present whenever an electrocoagulating current is used within the labyrinth. Consequently, since both of these procedures are equally effective in relieving the vertigo of Ménière's disease and the period of convalescence is essentially the same, I believe that the Cawthorne operation is the procedure of choice for the surgical treatment of unilateral Ménière's disease when the hearing in the affected ear is poor and that of the other ear is relatively good.

SUMMARY

The satisfactory surgical management of Ménière's disease requires that the diagnosis be correct. If this prerequisite to successful surgical treatment is not meticulously observed, the patient will continue to experience vertigo although the attacks may be somewhat diminished in severity.

Patients with typical Ménière's disease complain of tinnitus and recurrent severe attacks of labyrinthine vertigo which appear without rhyme or reason and are associated with nerve deafness, usually bilateral but more profound in one ear. A careful history entailing searching questions that will ferret out an accurate description of the vertigo which the patient experiences, as well as the nature of his deafness and tinnitus, will do more to establish the diagnosis accurately than anything else.

The vertigo of Ménière's disease is labyrinthine in origin and as such is manifested by movement in one way or another. Thus, the objects surrounding the patient may appear to rotate about him or he about the objects; the horizon may appear to fall away from him, rise up to meet him, or tilt toward one side or the other, or objects before his eyes may appear to shimmer or dance to and fro. In any case, motion is an integral part of the patient's description of his vertiginous attack. The patient may be unable to describe adequately the vertigo he experiences; in such instances, douching the ears with ice water may do much to clarify his description.

Hearing in the affected ear is usually not at a serviceable level. The auditory acuity frequently fluctuates, and this is more likely to occur in those cases which are not of long standing. Tinnitus is usually present and resembles a buzzing in the ear or a machinery-like noise. Loud noises may be unpleasant to the patient and may even precipitate an attack of vertigo on occasion.

Surgical intervention should be reserved for those patients who fail to respond to an adequately administered and proved form of medical treatment, or those for whom it is impractical to enforce such a program. The choice of operation is usually governed only by the available surgical skill. All things being equal, it would seem that intracranial section of the eighth nerve should be avoided in unilateral Ménière's disease when the hearing in the affected ear is poor, since complete relief from the vertiginous attacks can be obtained either by electrocoagulating or avulsing the membranous horizontal semicircular canal. These operations are as effective as section of the eighth nerve in relieving the vertiginous attacks, are simpler to perform, and permit the patient to return earlier to a gainful occupation than does section of the eighth nerve, which must be considered a more difficult major operation even in the hands of the most skilled.

It is the policy of the neurosurgeons and otolaryngologists of the Lahey Clinic to perform the Cawthorne operation when the cochlear function of the affected ear has deteriorated to such an extent that it is no longer serviceable. In the event that the hearing in the affected ear is at a serviceable level, as is occasionally the case, differential section of the eighth nerve is advised in order that this hearing might be preserved. Furthermore, when the presence of an intracranial neoplasm cannot be completely ruled out as the explanation for the attacks of vertigo, it is our belief that the intracranial approach is the procedure of choice, as in this way the presence or absence of an intracranial neoplasm can be ascertained and suitable surgical procedures thereafter employed.

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DISCUSSION

FREDERICK T. HILL, M.D., *Moderator*

DR. WALSH: Dr. Hill, if the discussion is open, I would like to have a word with Dr. Lathrop about his operation. In the first place, he said that the differential section preserves the hearing in the ear. What is the point of preserving hearing that is useless? Although the threshold loss might be small, the discrimination score is so impaired that the patient is much better off without hearing in that ear to bother him. Furthermore, if you can get rid of hearing in the affected ear completely, you frequently can stop the tinnitus; thus, his hearing in the other ear is relatively improved. Many patients on whom I have done a total destruction of the ear tell me that they hear better now because the annoying noise is gone. I would like to emphasize that point.

Further, when Dr. Lathrop talks about the Day and Cawthorne operations, I would like for him to be more specific. Dr. Cawthorne has said that he just lifts the horizontal canal out of the limb with the attachments that come with it, and that is all; but if that is done, the patient is not going to be rehabilitated.

We have done four cases now. One was particularly interesting. It was that of a doctor who knew more about Ménière's disease than anybody in this room and who had read more about it than any of us except perhaps Dr. Williams, who has read everything. But this doctor had had dizziness and attacks of vertigo for a long time, and finally he came up to have his ear destroyed. I did what I thought was a fairly good destruction. He stayed away for a year; then he came in to say that he had had no further vertiginous attacks, but that when he was walking in a forward direction, if he turned his head he promptly staggered and people on the street thought he was drunk. We operated on him again and destroyed the vestibule completely, every bit of the soft tissue in there, and he has had no further trouble.

I think that it is most important to be sure that the vestibule is empty, and I don't believe that can be done with a dental broach.

DR. LATHROP: I have to reply that the patient did not have useful hearing even though he had had a differential section of the eighth nerve. I find it difficult to advise sacrifice of the residual hearing of an individual when the hearing loss on the audiometric scale is only about 20 decibels across the board. Consequently, when such is the case, I believe that differential section of the eighth nerve is preferable either to complete section of the eighth nerve or to destructive labyrinthotomy. It is true that the hearing may subsequently deteriorate to the point of uselessness. The residual hearing following differential section, however, may remain at a useful level for a number of years, and I see no point in sacrificing it if that can be avoided.

The Day and Cawthorne operations, as originally described, were essentially identical, differing only in the way in which the destruction of the vestibular end organs was accomplished. Day originally employed electrocoagulation alone to effect this destruction. His technique has since been changed. He now avulses the membranous horizontal semicircular canal and contents of the vestibule, and then utilizes an electrocoagulating current to destroy the residual nerve endings. He believes that this permits the patient to have a smoother convalescence.

Cawthorne originally picked out the membranous horizontal semicircular canal with a small pair of forceps. With this technique he undoubtedly, at times, succeeded in removing only a portion of the membranous horizontal semicircular canal. It is my impression that he now, more often than not, accomplishes the removal of the horizontal canal and the contents of the vestibule with a barbed dental broach.

With respect to avulsion of the membranous horizontal semicircular canal and contents of the vestibule with a barbed dental broach, I believe that the fact that patients no longer have vertiginous attacks proves that avulsion is adequate. Except for two patients, one of whom did not have Ménière's disease and one

of whom had bilateral Ménière's disease, none of my patients has experienced further attacks of vertigo.

MODERATOR HILL: What is your opinion of the theory that Ménière's disease may have its derivation in autonomic disturbance primarily, based on neurotic conversion?

DR. WILLIAMS: If the question means that Ménière's disease may be a conversion neurosis, since I am not a psychiatrist, I am not well fitted to discuss the possibility that a neurosis might produce such definite physical changes as the pathologist finds in Ménière's disease. It is possible that if a given patient were subjected to emotional stress, this might stimulate an exacerbation of Ménière's disease in a labyrinth in which this reaction pattern was already established.

I personally disagree with some authors who believe that Ménière's disease is caused by anxiety. On questioning a large number of my patients, I find that only infrequently do they state that they had severe anxiety before their initial attack. Most of them develop an anxiety after the disease has been well established. To my mind it is very doubtful that psychogenic influences are actually the cause of Ménière's disease. I know that I am possibly in a minority in that position, but I believe there is definitely an anatomic or physiologic disorder, not a psychic disorder, that precipitates this condition.

MODERATOR HILL: I have a question here for Dr. Hoople. "Is'nt it true that Ménière's disease has multiple etiologic geneses requiring correction of all imbalances, electrolyte, endocrine, etc.?"

DR. HOOPLE: I think I have answered that question. Whether there is any other specific etiologic factor, I am not prepared to say, and I don't think anybody knows.

MODERATOR HILL: Here is another question for you. "Do toxic doses of streptomycin destroy the vestibular function and prevent attacks?"

DR. HOOPLE: I know of some instances in which that device has been used to destroy the function. One of the panelists reported a number of cases in which it was used and successful results were obtained. One of the panelists mentioned that he had had some untoward results. I have had no experience with this method of treating the condition. I would say that it would be most advisable to reserve this for the bilateral cases, of course.

MODERATOR HILL: Here are two questions on diplacusis that I will pass on to Dr. Walsh.

First, "Is the diplacusis permanent and constant or does it change during the attack?"

Second, "In diplacusis, I have noticed that sounds appear to have a higher pitch when heard with the good ear. What is your experience?"

DR. WALSH: With respect to the first question, I think it is always there. I don't know that it gets any worse during an attack, except that sometimes patients report that their hearing gets more fuzzy. But, of course, we have not mesaured these things during the attack.

What is the second part of the question?

MODERATOR HILL: Is there always a higher pitch in the good ear?

DR. WALSH: No, it may be higher or lower. I have never been quite clear about that. Sometimes patients say that the tone sounds higher in the affected ear and sometimes they say that it sounds lower. There is no rule as far as I know.

MODERATOR HILL: Dr. Walsh, while you are on your feet, here is a question. "Toward which side is the quick component of the nystagmus during attack?"

DR. WALSH: Let somebody else answer that. I cannot.

DR. WILLIAMS: May I answer that question, Dr. Hill? The quick component of the nystagmus may be in either direction during the attack. As a matter of fact, I have seen it change direction during an acute attack. I think that the direction of the nystagmus has no relationship to the ear involved.

With regard to the question about diplacusis, I would be inclined to disagree with Dr. Walsh about this point. I believe that a pure tone always seems higher in pitch in the involved ear. I believe that in those instances in which the patient reports the pitch to be lower in the involved ear, the examiner has not been sufficiently careful in instructing the patient to differentiate loudness from pitch. If one is very careful on this point, I think that he will always find that the pitch is reported as higher in the involved ear.

MODERATOR HILL: I have a question for Dr. Lindsay. "The hearing loss in Ménière's disease involves the lower frequencies particularly. Have you noticed a predisposition of the upper coil to damage by the endolymphatic hydrops?"

DR. LINDSAY: We have no explanation at the present time as to why the low tones are affected to a greater extent than the high tones. That is one of the things that are diffi-

cult to fit in with our theories about the functional disturbance. It is not explained.

MODERATOR HILL: Here is a question that has just come up. Dr. Lathrop, what has been your experience with streptomycin as opposed to surgery?

DR. LATHROP: I have never used streptomycin. Perhaps I am a little peculiar in that I like to be sure of what I am doing. I do not believe that I can control streptomycin sufficiently well to satisfy my conscience that I may not do more harm than good. Consequently, I prefer surgery.

MODERATOR HILL: Dr. Walsh, is it possible to have a true vertiginous attack without nystagmus?

DR. WALSH: What does one mean by "a true vertiginous attack?" Vertigo? I don't think it is. I have seen people dizzy without nystagmus: they say they are dizzy, but I don't believe that they have vertigo.

MODERATOR HILL: Dr. Williams, "Are there grades of Ménière's disease that are borderline, approaching subclinical involvement? One speaker seemed to assume that this is an all-or-none phenomenon."

DR. WILLIAMS: Subclinical is a rather vague term. There is Ménière's disease of varying degrees. I believe that one might say that a patient with a mild case of Ménière's disease is one who has infrequent attacks, possibly separated by one or several years. I don't believe that the attacks in these individuals are usually any milder when they do occur. It has been my experience that as the years go on, the attacks of Ménière's disease are likely to come more frequently. The remissions are more characteristic of the early years. The frequent attacks of Ménière's disease occur later, and sometimes in these later years the more frequent attacks will be more mild, although, of course, they are still incapacitating.

What "subclinical disease" might be, I am not quite certain.

MODERATOR HILL: Dr. Walsh, "Contrast briefly the physiological dysfunction in Ménière's disease with that in Lermoyez's syndrome."

DR. WALSH: Ask Dr. Williams. He knows more about it.

DR. WILLIAMS: According to Lermoyez's hypothesis, in Ménière's disease a sudden spasm of the internal auditory artery brings on the symptoms of tinnitus, dyspnea and vertigo, whereas in the syndrome of Lermoyez, spasm of the internal auditory artery has been present for some time and the release of the spasm brings on the symptoms. He compared his syndrome to Raynaud's disease, in which a sudden release of spasm will produce pain. He pointed out that the eighth nerve is a modified sensory nerve. "Pain" of the vestibular portion of the eighth nerve is vertigo; "pain" of the cochlear portion is tinnitus. In Lermoyez's syndrome, as he described it, a patient will have a severe attack of dizziness followed by complete relief of symptoms, whereas in Ménière's disease the vertigo is associated with an increase of symptoms.

MODERATOR HILL: Here is another question, Henry. "Why don't you ever see Ménière's disease in a fat person?"

DR. WILLIAMS: I did a destructive labyrinthotomy on a patient about two weeks ago; a woman about five feet tall, weighing about 230 pounds. It was my opinion that she had Ménière's disease.

MODERATOR HILL: Dr. Hoople, "How often does histamine sensitivity play a part as an underlying factor?"

DR. HOOPLE: I have no statistics to enable me to answer that question. I would not know. It often does.

MODERATOR HILL: Does anybody else on the panel wish to speak on this?

DR. WILLIAMS: My personal opinion is that there is no such thing as histamine sensitivity, if one speaks of histamine sensitivity in the sense of a specific hypersensitive reaction to histamine. The hypothesis of a hypersensitivity to histamine has been discredited by many investigators, and I do not believe that one is entitled to speak of histamine sensitivity.

MODERATOR HILL: Dr. Walsh, "What are the vestibular test findings during an attack of Ménière's syndrome and during an interval of freedom from symptoms?"

DR. WALSH: I have never had the nerve to do a caloric test in somebody having an attack of Ménière's disease. In between, as I have tried to point out, you might find out almost anything if you are using the Hallpike-Cawthorne test of hot and cold water.

DR. HOOPLE: Dr. Hill, I would like to speak to this one. I had the luck once to do a caloric test on a patient who had an active nystagmus to the right at the time that I examined her; I reversed the nystagmus, on the last test that I did, using cold water in the right ear. It so happened that it was time for the end of her attack. She told me some weeks afterwards, when she came back to see me, that it

was the best treatment she ever had!

MODERATOR HILL: Dr. Lathrop, "What is your opinion about Portmann's operation (endolymphatic sac destruction)?"

DR. LATHROP: I have never performed the Portmann operation. Dr. Lindsay has reported experience with it in the experimental animal and has found no reason to believe it to be a successful operation. In carefully analyzing the cases reported in the literature I think only one impression can be gained and that is, that it fails in too many instances to be considered a suitable operation for the surgical management of Ménière's disease.

MODERATOR HILL: Here is another question that could well come to you, Dr. Lathrop. "If this condition is really due to interference with the blood supply, fluid balance, sensitivity to food, increase in sodium in the blood, and so forth, how can you justify unilateral surgery? Won't the other ear eventually develop the same trouble?"

DR. LATHROP: I have seen a great many patients who I thought had Ménière's disease and found very few with bilateral Ménière's disease. As a matter of fact, I can recall only two. Dr. Day has had extensive experience with Ménière's disease and he, also, has found very few cases of bilateral disease. In the literature it is reported that not more than 10 per cent of the patients with Ménière's disease have bilateral disease.

MODERATOR HILL: There are two questions that could well go to Dr. Lindsay. One is, "Discuss the differential diagnosis and etiology of postural vertigo."

DR. LINDSAY: There are many possible causes of postural vertigo. It has been my experience that in a real Ménière's disease, a true postural vertigo is uncommon. It is perfectly true that a patient in an attack of Ménière's disease with spontaneous nystagmus will be more dizzy in some positions than in others, but I would not call that a true postural vertigo. Postural vertigo is uncommon according to my interpretation in Ménière's disease.

MODERATOR HILL: The other question is, "Differential diagnosis between cases of dizziness without hearing loss—what is the pathology?"

DR. LINDSAY: "Vertigo without loss of hearing." There can be a number of causes. Many intracranial conditions can produce it, and undoubtedly some peripheral inner ear conditions can produce it, although we may not know exactly what they are. In these cases of postural vertigo without hearing loss, we are in the position usually of never knowing exactly what the etiology has been. There are a few cases which we know are due to vascular accidents. We have one in our laboratory with the histological proof of that.

MODERATOR HILL: Dr. Walsh, "In conducting a caloric test, does the ratio of the refractive period to the duration of nystagmus have any place in the diagnosis of Ménière's disease?"

DR. WALSH: I have found that in doing the Cawthorne test one does not pay any attention to when the nystagmus starts. It is how long it lasts. The total time between when you start the fluid and when the nystagmus stops is what you measure. I don't know anything about the refractive period. I never look until I finish putting in the water, and then the nystagmus is usually there. I think that the degree of nystagmus is important, whether they have a wide nystagmus or a very small excursion.

DR. HOOPLE: Dr. Hill, that is in the literaature. I think the refractive period is simply a question of when the temperature change reaches the labyrinth. That is all.

MODERATOR HILL: Dr. Williams, you have a question that I passed to you. I thought you might read it to save my voice.

DR. WILLIAMS: This is a rather long question. "If autonomic effects go on after cutting autonomic nerves, how do you explain the successful surgical treatment of Raynaud's disease by surgical section of sympathetic pathways? Also how do you explain the visible and obvious effects derived in the numerous physiological experiments on animals to be found in the literature when sympathetic fibers going to vessels in extremities are sectioned?"

In the first place, in the treatment of Raynaud's disease the preganglionic fibers of the sympathetic nerve are cut to prevent regeneration. This does not produce 100 per cent good results in these cases. The reaction to temperature change is reduced, but after a time these patients lose a part of the good result. In other words, the immediate effect is good, but after sensitization to epinephrine has become established, the symptoms tend to recur.

The second part of the question, about the animals, is a little too vague to be able to answer very easily. It is about "the obvious effects derived in numerous physiological experiments on animals, when sympathetic fibers going to vessels in extremities are sectioned."

It may be that some of these animals did not survive long enough to develop the sec-

ondary reactions to denervation; that is, the reactions to hormones in the blood. If they are preserved long enough, they will develop them. As Cannon pointed out in his own experiments, in cases where the autonomic nervous system was sectioned, the cats did develop hypersensitivity to adrenalin. I think that the neurosurgeons will tell you that sympathetic section for Raynaud's disease does not give a complete cure.

Symposium: Meniere's Disease

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SUMMATION

FREDERICK T. HILL, M.D.
WATERVILLE, MAINE

I WILL try to summarize briefly the consensus of this panel on Ménière's disease.

We are agreed that the diagnosis should be limited to cases with aural vertigo, nerve deafness, and tinnitus. This condition is due to involvement of the endolymphatic system, and it is probable that autonomic dysfunction is the etiologic agent. In the opinion of the panel, it is. This dysfunction may be due to cholinergic preponderance. Certainly vasospasm is an important factor, resulting in local blood stasis. Stasis plays an important role, at least as an activating factor. There seems to be some inherited constitutional tendency and what might be termed a vasomotor neurosis, as in Raynaud's disease, migraine, and allergic disorders.

The pathologic changes are dilatation of the endolymphatic system, particularly the cochlear duct, with bulging of Reissner's membrane. Similar changes are noted in the utricle and saccule. Degeneration of the hair cells comes only at later stages.

The diagnosis is made mainly on the auditory findings. Cochlear changes come first and may be evident before development of vertigo. Patients show a loss of hearing, at first in the low frequencies but soon extending to the upper range. When charted, a typical nerve involvement type of pure tone audiogram is the result. Diplacusis and recruitment are important diagnostic criteria. The discrepancy between the pure tone audiogram and the discrimination score (phonetically balanced word lists) is important. The vertigo is typically aural and may be either subjective or objective. There is a sudden onset, and the attacks recur. Tinnitus is of a low roaring type or high pitched and intermittent. The caloric tests have little diagnostic value except in determining the character of the vertigo.

Medical treatment is rather unsatisfactory in that it is largely symptomatic and because the usual periods of remission, characteristic of Ménière's disease, may lead one to attach false values to the therapeutic agent employed. However, the usual vasodilation and blocking agents, together with mild sedation, should be used. It would seem advisable to endeavor to eliminate possible causes

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Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

of altered blood supply and fluid balance, with attention to allergic states, electrolytes, endocrine imbalance, vascular disorders, lues, drugs, tobacco, and alcohol. Again, the emotional state of the patient is important, and reassurance can be very helpful.

The indications for surgical treatment are the severity of symptoms and the failure of medical measures to palliate them. The number of cases requiring surgery is relatively small. Differential section of the eighth nerve may be employed in the rare case in which the hearing is relatively good but the vertigo severe. If an intracranial lesion has not been ruled out as a possible cause of the vertigo, this operation on the eighth nerve may be advisable. Complete section is more likely to afford lasting relief from vertigo. However, the labyrinthine procedures are much simpler and generally just as effective. Avulsion, using the Cawthorne approach, lessens the possibility of facial nerve damage, and if the procedure is correctly done with destruction of the endolymphatic structures, it is satisfactory.

Ménière's disease requires careful and thorough diagnostic study. By no means should cases of vertigo be classified as Ménière's disease unless they meet all diagnostic criteria. Successful treatment often depends upon good teamwork, and consultation with the internist and the psychiatrist may be of great value.

CONGENITAL ANOMALIES DUE TO MATERNAL INFECTIONS ESPECIALLY IN THE EARLY MONTHS OF PREGNANCY

SIR NORMAN GREGG
SYDNEY, AUSTRALIA
BY INVITATION

CONGENITAL anomalies may be genetically determined or they may be the result of environmental influences.

Of these influences, mechanical and chemical injuries, dietetic deficiencies in the mother, actinic effects, and maternal infections have been postulated. Probably other conditions will eventually be found to play their part.

Those cases for which no obvious cause has been determined are classified by Ida Mann as sporadic.

The field is, therefore, almost limitless, but the title of my paper, fortunately for me and even more so for you, has limited my field. I do not propose to say anything of the results of tuberculosis or syphilis, and, therefore, will restrict myself to a consideration of the viral diseases, especially rubella.

RUBELLA

So much has been written about this particular subject that I cannot hope to contribute anything new. May I, therefore, be permitted to confine my remarks to some features which seem to me to be of some significance.

Defects or Anomalies

The defects and anomalies resulting from maternal infection with rubella during the early months of pregnancies are varied.

1. Ocular defects, including cataract; microphthalmia; shallow anterior chamber; changes in iris; retinopathy; nystagmus; occasionally hydrophthalmia; and corneal opacity
2. Deaf-mutism
3. Cardiac defects
4. Mental retardation
5. Failure to thrive
6. General physical characteristics
7. Dental defects
8. Microcephaly
9. Hepatosplenomegaly associated with one or more of the other defects
10. Other anomalies not of special significance if considered in relation to their incidence amongst children born of normal pregnancies

Particulars of Defects

1. *Ocular defects.* I propose to speak of only two of these: cataract and retinopathy.

The following features of *cataract due to rubella* are important:

a. Its somewhat unusual, though characteristic, appearance and the fact that in most cases it is apparent from birth. It may be bilateral or unilateral.

b. Its liability in a few cases to subsequent change, either becoming denser or, occasionally, less noticeable but more membranous. In this respect it differs from most other forms of congenital cataract, which tend to remain unaltered for many years.

c. The difficulties associated with its surgical treatment.

d. Relatively poor prognosis for vi-

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sion, due not only to conditions associated with surgical treatment but also to associated defects in the eye and in other organs.

In retinopathy due to rubella, peculiar pigmentary changes in the fundus have been described by many observers. This condition can be seen most clearly in many cases of deaf-mutism without cataracts, or in the noncataractous eye in some cases with unilateral cataract.

It may be described as a measly or blotchy appearance involving the macular region and an area of three to four disc diameters surrounding it. In some cases the distribution is much wider and appears on the nasal side. The spots are discrete. In a few cases, also, there is a deficiency of pigment in the area adjacent to the disc.

Blankstein and Feiman[4] describe "blotchy discrete pigment spots decreasing in size to the periphery of the area involved." The pigment is deep in the retina. Long and Danielson[9] report, "Diffuse mottled pigmentation as though from a mild chorioretinitis." Swan[14] describes an arrangement of pigment in small, round, irregular or, sometimes, filiform masses of a blackish or leaden gray color. Cordes,[6] "Clumped and scattered fine pigment particles throughout the fundus most prominent in foveal area." Franceschetti, Bamatter and Bourquin, Marks, and many others have also described the retinopathy.

Many have described the condition in general as a "pseudoretinitis pigmentosa," or as an atypical retinitis pigmentosa. My own feeling is that it in no way resembles such a condition. Its importance lies in the fact that it apparently has no harmful effect on vision, and secondly, that it is an important diagnostic feature. The absence of a typical retinopathy does not rule out rubella as the causative factor in a particular case, but its presence in association with any of the other usual anomalies, I feel, practically clinches the diagnosis.

2. *Deaf-mutism.* This defect has been noted very frequently in the cases reported in Australia. Those I have encountered have exhibited the characteristic signs. Very few of them are totally deaf, but in the majority, the degree of deafness is severe. Most of the children appear to hear high-pitched sounds and sudden loud noises.

Carruthers[5] in his report stated that the defect was of the Schieb type—a sacculocochlear degeneration due to a defect of the organ of Corti.

An interesting point in connection with this defect is that surveys made of the dates of birth of children attending schools or institutions for the deaf in Australia, and also in New Zealand, show that deafness has appeared in epidemic form in certain years. There is some presumptive evidence that these epidemics were caused by antecedent epidemics of rubella. Moreover, in these "epidemic" years, there was a marked tendency to grouping of the cases within certain months of the year.

Deaf-mutism may be the sole defect, or it may be accompanied by ocular or cardiac defects; in some cases, all three may be present.

3. *Cardiac defect.* A cardiac defect was present in a large proportion of my own cases. This was always of the acyanotic type. A patent ductus arteriosus was the defect most frequently present.

The presence of a cardiac defect appeared to be of paramount importance in determining the physique of the child. It was present in every case in which the baby was small and ill nourished, and in which there were feeding difficulties. In cases without any cardiac defect, the general physical development

was noticeably better.

Surgical treatment in some cases of patent ductus arteriosus has produced striking improvement.

Dr. Douglas Stuckey,[13] in a survey of 400 consecutive patients examined at the Congenital Heart Diseases Clinic at Royal Alexandra Hospital for Children, Sydney, found 44 (11 per cent) children whose mothers had suffered from rubella during the early months of pregnancy. Of these 44, 13 had patent ductus arteriosus; 4, a ventricular septal defect; 3, an atrial septal defect; and 2, tetralogy of Fallot. Other defects occurred only once in each of 5 cases. In the remaining 17, the diagnosis was innocent systolic murmur.

In 10 of the 13 patients with patent ductus arteriosus, the attack of rubella occurred during the 1940 epidemic. Stuckey states that in this group, it can be calculated that the incidence of patent ductus arteriosus was about 88 times the expected normal incidence of this lesion in the general population.

In his summary, Stuckey states:

> Evidence is presented that almost any type of congenital heart defect may follow Maternal Rubella during pregnancy, but that patent ductus arteriosus occurs 8 times more frequently than other forms of congenital disease of the heart compared with the normal incidence in the general population.

According to their paper on "Seasonal Incidence of Patent Ductus Arteriosus and Maternal Rubella," Rutstein and his co-workers,[11] in a study of over 1,000 children, found a distinct seasonal distribution in the birth dates of children with patent ductus arteriosus. They state that the results of the study suggest that the seasonal "excess" of cases of patent ductus arteriosus is due to a seasonal environmental factor, probably rubella. They stress the need for confirmatory proof by further research.

4. *Mental retardation.* It would be natural to expect that many of these children would appear to be backward, particularly those who have more than one of the three chief defects: cataract, deaf-mutism and heart anomalies.

From a study of my own cases, I believe that there is in some a condition of mental retardation *per se* which is not merely the result of the defects of the organs of special sense. Many of them presented a truly pathetic sight, amounting at times to complete imbecility. They exhibit an extreme degree of head banging, also of the Franceschetti sign, digito-oculaire, to the stage where they appeared to be trying to gouge out their eyes.

Even the mental attitude and general demeanor of the deaf-mutes without any cataract are unusual. Frequently they are overbright. They are always on the move, are lacking in any sustained concentration, and are a source of great worry and anxiety to the mother.

I am aware that many authorities claim that provided these children are taken in hand early enough, and provided also that the parents (or whoever may be responsible for their care) are themselves trained in the correct principles of management, the standard of intelligence for this group of children can be raised considerably.

I do not join issue with these authorities. On the contrary, I am entirely in accord with the absolute necessity for such early treatment and management in each case. However, I still feel that some of the cases do have mental retardation *per se*, and in some, this was of such degree as to be beyond cure or redemption.

The presence of undoubted microcephaly in some cases must not be forgotten.

In a study of children in "institutions for the feeble-minded," Lande[8] found 16 patients who showed congenital malformations resembling the postrubella syndrome. He grouped them as follows:

Group 1—Rubella	7
Unknown	3
Group 2—Virus Influenza	1
Very severe colds	5

All 16 had severe mental deficiency, probably due to associated failure in normal cortical development. Lande stated that the neurological signs were similar in each group.

Diagnosis

A proper diagnosis is important for two reasons:

1. In regard to *treatment*. A correct diagnosis may influence the choice of the type of operation to be performed on the cataract.

2. In regard to *prognosis*.

a. For the particular child, both as to (1) the result to be expected from surgery and (2) future general welfare;

b. In assessing the risk of defects in any future child of the marriage. As in toxoplasmosis, there appears to be an almost absolute immunity in the children born subsequently.

Relation of the Time of Maternal Infection to the Occurrence of Congenital Defects

It is interesting to recall that, as early as 1920, Stockard,[12] as mentioned by Bass, showed that anomalies resulting from environmental influences on the developing egg were dependent upon the stage of fetal development at which the injury took place. He spoke of "critical moments" of origin for the organs of the embryo. During such critical moments, the noxious influences may cause irreparable damage to the developing embryo, whereas the same trauma operating during a "passive period" may have no effect at all.

Warkany[16] divides the intrauterine life into an embryonic period, which practically extends through the first trimester, and a fetal period, from the twelfth week to birth. He states that the various organs are sensitive to noxious agents at periods of rapid differentiation, but are less sensitive to them in resting stages.

Ida Mann[10] has stated:

> In man the most important determining factor for the effect of a maternally transmitted disease is the time of its action, only those cells which are in active division at the time being affected.

It is when rubella occurs in the first trimester, the organogenetic period, that we are likely to find congenital defects in the infant; it is the exception to find defects when the infection has occurred later than the third month.

Within this critical period, the first trimester, the earlier the infection occurs the more likely is the lens to be affected; the risk to the eye diminishes rapidly during the third month. The heart also is vulnerable in the early months; the ear particularly during the second and third months.

Treatment

I do not propose to discuss the treatment of the cataract. I will only say that I am in entire agreement with all the principles enunciated and so beautifully expressed by Dr. Frederick Cordes* in his brilliant lecture here a few days ago. The difficulties associated with the surgery of congenital cataract are, in my opinion, more pronounced in this rubella variety. Therefore, the methods advocated by Dr. Cordes are the methods of choice.

*Failure in Congenital Cataract Surgery: A Study of Fifty-Six Enucleated Eyes. This paper will be published in the May-June, 1956 issue of the TRANSACTIONS.

I propose to consider here only the prophylactic treatment.

Since one attack of rubella appears to confer a high degree of immunity, obviously the ideal method is active immunization, either natural or artificially induced.

Anderson,[1] in 1949, reported the results of an experiment conducted in Victoria to produce rubella in human volunteers. Among the statements included in his summary were the following:

a. Typical rubella has been produced by the inoculation of human volunteers by the respiratory route.
b. Susceptible individuals were infected by contact with the experimental disease. There is no evidence that the artificially induced disease differs in any way from natural rubella, and
c. Evidence is presented for the existence of subclinical or unnoticed rubella.

In another paper,[2] he pointed out two difficulties:

i. That although it is possible readily to prepare rubella virus free from bacterial pathogens, it is not so easy to be sure it is free of other viruses.
ii. Administrative difficulty resulting from the necessity to isolate the artificially infected person from the community during a period of ten days.

In the absence of immunity from previous infection, can temporary passive immunity be conferred on a pregnant woman who comes into contact with the disease, especially in the early months of pregnancy?

Attempts have been made to do this by use of gamma globulin or convalescent serum. I am aware that, in the opinion of many workers, this method is thought to be of little or no value. I feel it may be interesting, therefore, to relate the experience of some workers in Sydney.

The New South Wales Red Cross Blood Transfusion Service[15] has made convalescent serum available to the medical profession since 1949 for administration to women exposed to rubella in the first sixteen weeks of pregnancy. The serum is obtained from volunteers approximately three weeks after the disappearance of the rubella rash. The serum is not pooled. Thirty milliliters is injected intravenously within five days of exposure.

A review of the results (table I) has "suggested" that this may be worth while, and, although the reliability of the apparent results is not determined, it is proposed for the time being to continue this service.

These results are somewhat at variance with those achieved in Melbourne and elsewhere.

TABLE I

INCIDENCE OF RUBELLA IN PREGNANT WOMEN EXPOSED TO THE DISEASE AND WHO RECEIVED INJECTIONS OF CONVALESCENT SERUM AS COMPARED TO A CONTROL GROUP

CLASSIFICATION	TREATED	CONTROL
Exposed to Rubella	456	148
Contracted Rubella	5	17
Did not Contract Rubella	451	131
Incidence	1.1%	11.5%

$\chi^2 = 62.0$ for 1d. of F.
$p < 0.00 \ldots 1$

A lot of work on the virus of rubella has been, and is being, done at the Walter and Eliza Hall Institute by Drs. S. G. Anderson and H. McLorinan under the direction of Sir Macfarlane Burnet. In his latest study, Anderson,[3] as reported in the Lancet, obtained results which appear to indicate that rubella virus can multiply and produce lesions in tissue cultures of monkey kidney and human embryonic tissues. This is a promising step forward.

It is obviously of prime importance to be able to assess the risk to the baby in any case in which the mother is known to have been infected with rubella.

It must be remembered that at the beginning, such assessments were made in retrospect, i.e., on children known to have a defect. The defect was studied, and then search was made for the causal agent. This method is obviously unsatisfactory in attempting to find any true percentage of risk. The enquiry must also be on a forward basis.

Every case in which the potential mother is known to have had the infection must be traced to its termination, and the baby born of that pregnancy must be studied thoroughly for the presence of any defects. I am certain that, in the case of rubella, this cannot possibly be achieved unless this disease is made compulsorily notifiable. Any such study must be comprehensive and meticulously carried out.

One other point on which I would like to touch: Was the rubella which was responsible for so many cases in the "epidemic" period different from the disease previously known, which had come to be regarded as so trivial as to be considered worthy of being called a nuisance rather than a disease? Did the virus mutate?

I feel the evidence now obtainable justifies the answer that the disease was the same, and that there is no need to postulate any mutation of the virus.

Evidence in favor of this view is the finding of many cases among older people of congenital defects similar in every respect to those of the rubella syndrome or embryopathy and in which a history of maternal rubella was definitely present. The continued occurrence of cases similar in type, though certainly considerably fewer in number and presenting almost as sporadic cases, is further evidence in its favor.

It is my belief that the risk is still present and will continue.

INFECTIONS OTHER THAN RUBELLA AS CAUSE OF CONGENITAL DEFECTS

Cases of congenital anomalies in the infant following maternal infection with other diseases have been reported from many sources. The diseases so incriminated are mumps, smallpox, varicella, poliomyelitis, influenza, infective jaundice, and herpes zoster. In mongolism, the question has been raised as to whether maternal infection (virus or toxin) plays a part.

In my own experience, I have seen a few cases of cataract in which a history of influenza during the pregnancy has been obtained. In one case, there was a history of infective jaundice, and in another, of rubella and measles at different periods in the same pregnancy.

Because measles is such a common disease, and since one attack does not appear to confer immunity, it would be expected that it would be likely to cause congenital anomalies. Yet Bass states, "The conclusion that measles is in no way comparable to rubella in its harmful effect on the foetus is justified."

In the present state of our knowledge, I feel that it is fair to say that when congenital anomalies do occur after maternal infection with these other diseases, these anomalies do not appear to form any regular pattern similar to the rubella syndrome.

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THE AGING OF THE RETINA

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BY INVITATION

THE aging of the human body, a physiological process we all experience, affects all our tissues according to a regular pattern but not to the same degree. Cases have been known in which the hair of the head of each member of a family has turned gray between the thirtieth and the fortieth year; that is to say, a typical characteristic of old age occurred in the hair at a time when all the other tissues and organs of the body were still fully functioning. The same is true of the senile cataract of the eye, which may occur at a very early age in certain families. In both of these examples, senile changes affect individual organs and tissues much earlier than they do the body as a whole.

However, it is not easy to answer the question of what really constitutes the process of aging. We can only interpret the expression loosely by saying that the cells, tissues and organs of our body undergo anatomical, functional and chemical changes as a consequence of wear, and that these changes, unless there are sudden catastrophes, such as diseases, gradually lead to the devitalization of cells and thus to biological death.

The question of the way in which senile changes affect individual organs is not often given an adequate answer, since our present-day knowledge of the morphology of aging is not far enough advanced. Gerontology is still a young science, which draws contributions from every field of medicine.

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Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

We have to make a distinction between *diseases* of old age and the *senile changes* brought on by old age. The former are connected with the pathology, the latter with the physiology and anatomy, of senescence. While many studies have been made of the first subject, relatively little is known of the second. This is also true when we turn to the studies made of the human eye. The invention of the ophthalmoscope and of the slitlamp, which has made it possible to examine living tissues microscopically, have opened up unique opportunities for studying the eye, which, in turn, have given ophthalmologists a better knowledge of senile changes in the eye, a borderline area between physiology and pathology. Even in ophthalmology, however, some fields of study are favored and some are neglected. In the following discourse, I shall deal with a field which has been more or less neglected: the question of *senile changes in the retina*, the part most essential to vision. In discussing these senile changes, I shall try to follow the stratified structure of the retina, working from the outermost layer in. The description of the senile changes involved is given from a purely clinical point of view, taking into consideration, however, the anatomic knowledge we have gained up to now.

Pigmented Epithelium

Senile changes in the pigmented epithelium consist of a local or diffuse atrophy of this tissue. *Local atrophy* is manifested by a conus senilis in the area around the papilla, by depigmentation occurring only on the temporal side

of the papilla, or as a halo senilis all around the optic nerve. Patches of depigmentation may, however, also occur in the equatorial zone, as I have already pointed out elsewhere.

Diffuse atrophy of the pigmented epithelium in old age finds its manifestation in the more frequent occurrence of tesselated fundi in this age group, as compared with younger age groups. Research carried out by the Japanese Esaka has produced the following results:

	Fundi tabulati	Homogeneous fundus
Before 50:	15.9%	84.1%
After 60:	59.3%	40.7%

This table seems to indicate that persons with a homogeneous red fundus in their youth develop a tesselated fundus tabulatus in old age as a consequence of diffuse depigmentation of the pigmented epithelium.

Rods and Cones

Senile changes in the rods and cones can only be deduced from the following functional changes in these cells: (a) a lowering of visual acuity in old age; (b) a narrowing of the field of vision; and (c) impaired light and color sense.

The lowering of visual acuity in old age, another experience every one of us undergoes for himself, is caused by three factors: physiologic sclerosis of the nucleus of the lens; increased internal reflection of the corneal tissue; and the consequences of wear on the sensory epithelium of the retina, manifesting themselves in a changed chemism of rods and cones in old age and in the slower production of visual purple, the latter depending on the supply of vitamin A. Donders' fundamental book, "Die Anomalie der Refraktion und Akkommodation des Auges" (1888) contains, on page 159, a table reprinted from the thesis of his pupil, de Haan, which shows the results of an examination of 281 practically emmetropic persons between 7 and 82 years of age. According to this table, visual acuity remains fairly constant until 30, but after that age it shows a steady decline, until at 80 it is only half of what it was in youth. The wearing out of visual cells is also illustrated by an observation made by Baillart in 1943: after a young person has focused on the bright gleam of an ophthalmoscope, the first thing he sees is a black spot, which changes to green, and then, after 10 to 15 seconds, to orange. An elderly person does not see orange until after a minute or so, i.e., in old age the retina takes much longer to recover from this stimulus.

Systematic research must still be undertaken to find out more about the influence of old age on the extent of the field of vision, and on light and color sense. To date the only information we have is a statement by Auerswald, Bornschein and Zwiauer on a statistically significant difference between the average threshold values of light and peripheral visual capacity in the dark of younger and of older people.

Retinal Parenchyma

Senile changes in the retinal parenchyma are manifested in (a) decreased transparency of the retina, (b) an increased occurrence of Blessig-Ivanov's cysts in the retina, and (c) cystlike changes in the foveal region.

Whoever has occasion to examine a large number of fundi through the binocular eyepiece of Gulstrand's ophthalmoscope will frequently notice a certain *opacity of the retinal parenchyma* in patients above 60 years of age with an otherwise normal fundus. In this phenomenon I see a reflection of the aging process of the proteins making up the substance of the retina.

The cystlike degeneration of the periphery of the retina is mainly known to

oculists as an anatomic change in the retina. In recent years this subject has again received an excellent treatment from the anatomic point of view by Samuels. On ophthalmoscopic examination, this change is only recognizable in cases of aphakia, extreme hypermetropia, and coloboma of the iris, since this type of senile change is normally restricted to the outermost peripheral regions of the retina. However, cases do occasionally occur in which these cysts spread towards the macula. These changes, however, have practically no effect on visual acuity.

Cystlike changes in the center of the retina, i.e., in the macula, may also occur as a genuine consequence of old age. In these cases there is no impairment of visual acuity; the patient is consequently unaware of these changes until they are accidentally discovered by the doctor in the course of his examinations. As a "honeycomb macula" (Vogt), the change is clearly visible, particularly when examined by red-free light, and it may give rise to a metacystic hole in the retina.

Membrana Limitans Interna

Senile changes in the internal limiting membrane may be diagnosed by (a) the *loss of luster of the inner surface of the retina,* demonstrated objectively by photographs of the eye grounds. Compare the many sharply defined, irregular reflexes on the inner surface of the retina, e.g., in tortuositas vasorum in a 7-year-old girl with a fundus like that of a woman of 45 (see Atlas photographischer Bilder des menschlichen Augenhintergrundes, Dimmer and Pillat, Vienna, Deuticke, 1927).

(b) In young people, frequently very bright *reflexes* radiate from the papilla along the striation of nerve filaments. This is also true of reflexes on the internal limiting membrane radiating from the fovea and frequently having double contours, and the juvenile vertical reflexes between the papilla and the fovea. These are no longer discernible in old age, or only traces remain. It is the same with the foveal marginal reflex and the foveolar reflex, which are both dimmed in old age, or disappear entirely.

Macula Lutea

The senile change of the macula lutea is already discernible on ophthalmoscopic examination by ordinary electric light. It can be recognized by the fact that in old age the darker red of the macula within the fovea centralis is no longer set off so sharply from the red of the rest of the fundus as it is in youth. When examined by red-free light, this difference becomes even more clearly discernible. As early as 1907, Chevallereau and Polack showed that the color of the macula is lemon in youth and orange in old age. In addition, my own observations indicate that the yellow of the macula loses its sharp outlines in old age; it blurs at the edges and is often flecked with tiny brownish specks (Baillart).

Vessels of the Retina

Senile changes in the vessels of the retina can mainly be diagnosed by the decrease in the bright luster of the normal reflex stripes of arteries and veins, which is caused by the fact that the walls of vessels, which are quite transparent and crystal-clear in youth, easily become opaque in old age, thus clouding the reflex stripes produced by the axial blood stream. When examined by red-free light, the two white stripes along the black column of the blood appear to be clearer and wider, with no changes in the width and uniformity of the blood column as contrasted with hypertensive and atheromatous changes in the blood vessels.

Normally, these accompanying stripes are not discernible in ordinary ophthalmoscopic light. When they are, they no

longer indicate a mere increase in the opacity of the connective tissue of the vascular wall, i.e., a physiologic senile change, but are evidence of a pathologic sclerosis or fatty degeneration of the vascular wall. This is a genuine senile degeneration characteristic of hypertension and atheromatosis. We shall not, however, enter into particulars here.

Concretions in the Retina

Senile concretions in the retina consist mainly of fat, cholesterin, lime or fat soaps. The following illustrations (slides) show symmetrical fatty deposits in the nasal half of both fundi in an otherwise healthy man of 64, with 6/9 vision and Jäger I; somewhat coarser punctiform deposits in all layers of the retina in a 75-year-old woman with normal vision; symmetrical fatty deposits in the central region of the fundus in a 79-year-old woman, which are clearly distinguished by the color, arrangement and size of the specks from the pathologic fatty degeneration found in the retina in cases of albuminuria, hypertension and diabetes.

I have described the deposits of cholesterin, lime or fat soaps and unknown matter in the otherwise normal central or peripheral region of the retina as a *senile formation of concretions.* In the following picture of the fundus of a 76-year-old man (slide) the cholesterin deposits can be recognized by their glitter, their different size and jagged edges. Isolated cholesterin crystals frequently occur in senile fundi, and are known to every oculist. In a woman of 60, dull gray specks of different sizes and irregular in shape arranged about the slightly marmoraceous fovea occurred symmetrically in the middle and inner layers of both retinas. These deposits were either lime concretions or tyrosine crystals, or consisted of substances closely related to fat soaps. What is important for the diagnosis of senile changes in the retina is their symmetrical occurrence in both fundi.

Pigmentation of the Retina

As a special group, I should like to mention the *senile pigmentation of the retina,* which is similar in appearance to the clinical picture of an incipient retinitis pigmentosa. This phenomenon is not so rare in old age. It occurs mainly in the equatorial zone and is accompanied by a normal field of vision and a normal light sense. As in tapetoretinal degenerations, the senile pigmentation of the retina also exhibits pigment configurations resembling bone corpuscles, which, however, are limited to the outer and middle layers of the retina. The inner layers and the blood vessels are not affected by this change. For this reason, the typical signs of retinal atrophy—the constriction of the blood vessels of the retina and the atrophy of the optic nerve—are absent. In practically all cases this senile pigmentation occurs symmetrically in both fundi, is often more clearly discernible in the nasal half of the fundus than in the temporal half, and is often associated with peripheral "drusen" bodies in the lamina vitrea. Its rate of progression is very slow. In tapetoretinal degeneration and in the senile pigmentation of the retina we have once more a field of transition between pathology and physiology, between a diseased condition and a mere aging of tissues.

PROLONGED ADMINISTRATION OF DIAMOX IN GLAUCOMA

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IT has been approximately two years since diamox was first introduced as a means of lowering intraocular pressure. The pressure-lowering action of this drug has been well established. (Becker, 1954; Grant and Trotter, 1954; Breinan and Gortz, 1954; Leopold et al., 1954 and 1955; Kleinert, 1954; Purcell and Schane, 1954)

MODE OF ACTION

The drug appears to work by reducing the inflow of intraocular fluid and, except for the report of Kleinert, does not appear to have any action at the present time on the facility of outflow. (Becker, 1954; Grant and Trotter, 1954)

There is evidence that this agent inhibits carbonic anhydrase activity in the ciliary body, and it may be exerting its influence on the formation of intraocular fluid through its inhibitory properties on this enzyme. (Green et al., 1954)

The degree of the resultant fall in intraocular pressure depends on the amount or extent of inhibition of intraocular fluid formation produced by the agent and the facility of the outflow mechanism (Becker, 1955). All of the investigators to date have agreed that diamox produces only a temporary effect and that the drug must be continued in order to prolong its pressure-lowering action.

SHORT-TERM THERAPY

The accompanying table (table I) lists the cases treated at the Wills Hospital and exemplifies the types of glaucoma which have responded to short-term therapy with diamox. The drug obviously will produce a dramatic fall in intraocular pressure in many eyes with primary and secondary glaucoma. The drug appears to work in narrow angle (acute angle closure), wide angle or chronic simple glaucoma, glaucoma secondary to capsule exfoliation, pigment accumulation in the angle, glaucoma secondary to iridocyclitis, and that associated with aphakia. However, in glaucoma in which there have been extensive peripheral anterior synechias so that much of the facility of outflow has been impaired, the results of diamox therapy have not been very satisfactory. The drug also seems to have only sporadic success in hemorrhagic glaucoma.

METHOD OF ADMINISTRATION

The drug can be administered orally as uncoated or enteric-coated tablets.* The enteric-coated tablets have been devised to give a more prolonged action. The usual length of action of a 250-milligram uncoated tablet is approximately up to six hours. The enteric-coated tablet (formalinized gelatin-coated) may have an action lasting as long as twelve hours. A tablet combining an uncoated portion and a coated portion would give rise to immediate action and

From Wills Eye Hospital, Philadelphia.
Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

*Supplied through the courtesy of Dr. J. D. Gallagher of the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

TABLE I

RESULTS OF SHORT-TERM DIAMOX THERAPY

TYPE OF GLAUCOMA	NO. OF PATIENTS	NO. OF EYES	NO. OF EYES WITH PRESSURE LOWERED MORE THAN 10 MM. BY DIAMOX
Narrow Angle	50	76	72
Open Angle	102	201	186
Pigmentary	3	5	4
Capsulare	3	6	6
Infantile	4	7	6
Aphakic	26	27	20
Uveitic	40	49	42
Venous Occlusion	16	17	2
Traumatic Hyphemia	18	18	8
	262	406	344

also provide a more prolonged one. Such a preparation is now available. At the present time, the uncoated tablets can be used in doses from 250 to 500 milligrams four times daily. By using the combined tablet, one may be able to administer the drug only twice each day and obtain an equally effective degree of action. This has not been established to date.

The intravenous route of administration is usually employed for those patients in whom one is desirous of obtaining an extremely rapid effect on the ocular pressure, particularly in those individuals who are vomiting or unable to retain ingested material. The dosage for such individuals is 250 milligrams given in 3 cubic centimeters of sterile distilled water and repeated in two hours; this should be followed by oral administration as soon as the patient is able to take the drug in that fashion.

DOSAGE FOR LONG-TERM THERAPY

The dosage of diamox required can be determined by tonometry, measuring the diurnal fluctuations throughout a 24-to-48-hour period, and by the use of tonography.

It is generally believed that short-term diamox administration is a most effective adjunct to other means of therapy in the treatment of acute primary and secondary glaucoma, as exemplified in the accompanying chart (table I). At the present time it may be of interest to note whether or not this agent would have practical value in the long-term therapy of glaucoma. Two studies have been reported along this line: one by Becker, who has reported on the cases of 70 patients treated for six to eighteen months; and another by Kupfer, Lawrence and Linner, who observed 29 patients for a period of fifteen to seventeen months. In Becker's series of 50 eyes with open angle, there were 19 failures; in eyes with narrow angles, 8 failures out of 10; in secondary glaucoma, 5 failures out of 10. Failures, by definition, include those cases in which the patient could not take the drug because of its side effects or because of inadequate controls. In the Wilmer Institute Group there were 9 failures; 5 had to be operated upon, 2 were unable to take the drug because of the side effects, and 2 developed central scotomas which may or may not have been related to the

diamox. Patients at the Wills Hospital who have been on diamox more than six months have been similarly analyzed.

DESCRIPTION OF CASES AT WILLS HOSPITAL

One hundred and eleven patients with chronic glaucoma at the Wills Hospital have been carried on diamox longer than six months. Thirty of these have been on the drug for over fourteen months and five for longer than twenty-two months (table II). Seventy-seven eyes had primary open angles, 18 eyes had narrow angles, and the remainder had secondary types of glaucoma.

The dosage and frequency of diamox administration was determined by the patient's ability to respond to his own miotic plus diamox throughout a 24-hour period. Diamox was administered in divided doses every six to eight hours to a total of 250 to 2000 milligrams per day. The average dose necessary for the control of adult patients was 250 milligrams every six hours. After establishing the amount of diamox required, a combination of 250 milligrams of regular diamox and 250 milligrams of delayed action diamox was tried every twelve hours. This was done because the delayed-action diamox was expected to act approximately six hours after administration. Other drugs were employed. Miotics were used in all cases in addition to the diamox. The criteria of success were similar to those set up by others, namely, successful control and maintenance of intraocular pressure in both eyes below 30 mm. Hg at all times, no loss of vision or visual field in either eye, no intolerable side effects. The therapy continued for a minimum of six months with adequate follow-up. Any case failing to meet these criteria was classified as a failure. The criteria were similar to those employed by Becker and Middleton. The results are presented in table II.

REASONS FOR FAILURE

Ocular Toxicity

In no eyes in this series were there any pathologic changes in the lens, retina, or cornea which could be attributed to the systemic administration of diamox. It has been suggested that the decreased inflow of intraocular fluid might lead to inadequate nutrition in a structure such as the lens when the drug was administered over a prolonged period. Such a change was not seen in this series or in any earlier reported series.

Systemic Side Effects

In the majority of these cases, approximately 80 per cent had side actions of the drugs such as paresthesias, gastrointestinal symptoms such as anorexia, weight loss, fatigue, drowsiness, and renal colic (tables III and IV). One individual showed marked confusion after being on the drug for six months. None of the patients in this group showed any evidence of ocular dysfunction due to the drug, nor did any develop central scotoma. In eight, the drug had to be stopped because of these side effects after it had been tolerated for over six months. It must be noted that a much greater number of patients could not tolerate the side effects, but those are not included in this series who could not be carried on the drug for six months.

Inadequate Control of Intraocular Pressure

In 36 patients the drug was stopped because diamox was no longer controlling the intraocular pressure. Several of these continued to show reduction of formation of intraocular fluid by tonography, but this was inadequate to lower the intraocular pressure satisfactorily and to maintain function of the eye. Twenty-three cases showed a drop in intraocular pressure and a decrease in inflow of aqueous for a while

TABLE II

RESULTS OF LONG-TERM ADMINISTRATION OF DIAMOX
(DURATION OF THERAPY: 6-20 MONTHS)

TYPE OF GLAUCOMA	NO. OF CASES	SUCCESS		FAILURES	
		NUMBER	PERCENTAGE	NUMBER	PERCENTAGE
Open angles	77	50	67	27	33
Narrow angles	18	6	33	12	67
Secondary	16	11	68	5	32
Total	111	67	60	44	40

TABLE III

DIAMOX
SIDE REACTIONS

1. Nervous system
   Peripheral .....Paresthesias
   Central .....Drowsiness, easy fatigue, disorientation, confusion
2. Gastrointestinal . .Anorexia, nausea, diarrhea
3. Renal .....Polyuria, colic
4. Skin .....Dermatitis
5. Blood .....Dyscrasia? Acidosis
6. Ocular .....Interfere with ocular metabolism?

CONTRAINDICATIONS

.. Previous loss of Na+ or Ka+
... Addison's disease
... Pre-existing metabolic acidosis
.... Hepatic cirrhosis

DISCUSSION

These observations confirm those made earlier by Linner and Friedenwald and by Becker and Middleton, that in an appreciable number of cases, eyes with chronic glaucoma inadequately controlled by miotics alone, or by miotics and surgery alone, can be controlled for longer than six months, and in some instances for almost two years, by the addition of diamox to their therapeutic regimen. Almost all of the patients in our study had some of the undesirable side effects of the drug. However, a large percentage of them could be continued comfortably on the agent, with beneficial lowering of intraocular pressure. The majority of patients in this

TABLE IV

REASONS FOR FAILURE
OF LONG-TERM (6 MONTHS +) THERAPY

TYPE OF GLAUCOMA	NUMBER	SIDE EFFECTS NUMBER	INADEQUATE CONTROL NUMBER	FAILURES	
				NUMBER	PERCENTAGE
Open angle	77	5	22	27	33
Narrow angle	18	2	10	12	67
Secondary	16	1	4	5	32
Total	111	8	36	44	40

but became resistant to the action of diamox and no longer responded by drop in pressure or reduction in inflow. series were Negro. Becker and Middleton have noted a greater tolerance for the drug by this group, which may ac-

count for the small number in this series that had to stop the drug after six months of therapy because of intolerable side effects. The undesirable side effects will limit the use of the drug for individuals, particularly elderly ones, who are made drowsy and underweight individuals who hesitate because of the weight loss induced by the anorexia caused by the diamox. The possibility of ocular damage being produced by more prolonged use of diamox cannot be excluded by any of the studies performed to date.

Diamox should be considered as an agent which does not attack the basic fault in glaucoma but which controls the pressure by reducing the inflow of fluid. Measures which will increase the outflow of aqueous humor must still be employed. Diamox may be used in chronic cases in which other measures have failed or in which, because of age, serious illness, or sensitivity, other agents and methods which will reduce the resistance to outflow of intraocular fluid cannot be employed. Anyone who employs this chronic form of therapy with diamox should be well aware of the side effects and should keep the patient under close surveillance.

CONCLUSIONS

1. Diamox can aid in the control of a variety of chronic glaucomas for periods of time exceeding six months.

2. Failures encountered with such therapy will be due to untolerated side effects of the drug as well as to inability to lower the intraocular pressure.

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DIAMOX: FURTHER REPORTS ON ITS USE

ROBERT R. TROTTER, M.D.

BOSTON, MASSACHUSETTS

BY INVITATION

ABOUT eighteen months ago the appearance of Becker's report on the effectiveness of acetazoleamide* in the treatment of glaucoma marked the first really new approach to the medical therapy of glaucoma in some decades.

It is now generally accepted that this carbonic anhydrase inhibitor reduces intraocular pressure by partially suppressing the formation of aqueous humor (in contradistinction to the action of miotics, which facilitate the excretion of aqueous).

It is generally agreed that diamox is a very effective adjunct to other therapeutic measures in the treatment of acute angle-closure glaucoma. Use of the intravenous form in patients who are vomiting is worth while.

Sufficient information has now been accumulated to indicate that diamox is also effective in controlling intraocular pressure over a long period in eyes with chronic glaucoma previously inadequately controlled by topical medication.

At the Massachusetts Eye and Ear Infirmary, our series of 44 patients includes 12 individuals with severe glaucoma whose intraocular pressures have been controlled by diamox for fourteen to twenty-two months: 5 with open-angle glaucoma, 3 with glaucoma capsulare, 1 with pigmentary glaucoma, 1 with congenital glaucoma, and 2 with glaucoma secondary to inflammation.

It is our practice to use diamox only after the failure of intensive topical therapy. By intensive therapy, we usually mean pilocarpine, 4 per cent, every three hours, epinephrine bitartrate every six hours, and sometimes DFP, 0.1 per cent, at bedtime.

We usually add diamox in doses of 250 milligrams every six hours, unless the delayed-action form is used, when we might employ a tablet of regular diamox and a delayed-action tablet together every twelve hours. If stabilization occurs, the dosage may be cut accordingly. If a helpful tension fall has not occurred within a reasonable period, the drug is stopped.

In our experience, poor tension-lowering results can be expected in eyes in which the outflow is obstructed by peripheral anterior synechias of whatever origin. Poor results can also often be expected in congenital and hemorrhagic glaucoma. It should be remembered that even a large reduction in aqueous formation may not be able to compensate for severe obstruction of outflow.

Failure is as often attributable to side effects as to insufficient lowering of tension. Usually tolerable to the patient are paresthesias and fatigue; frequently intolerable are anorexia and weight loss. The latter can be prevented by the substitution of enteric-coated tablets or gelatin capsules of diamox.

We believe that diamox should be used over the long term in chronic glaucoma when the most intensive topical regimen

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Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

*Diamox, produced by Lederle Laboratories Division, American Cyanamid Company.

practical to the patient fails to prevent progression of disc damage or field loss in an eye which is unable to stand surgical intervention without danger.

Cases which early show adequate lowering of tension in response to diamox and in which the patient uses the drug faithfully seem to be controllable indefinitely, according to our experience of about twenty-two months.

We have not been aware of dangerous systemic toxicity in any of our patients thus far.

We have not been impressed with the effectiveness of diamox in re-forming flat anterior chambers after surgery.

AN ADJUSTABLE TELESCOPIC VISUAL AID

MORTIMER A. LASKY, M.D.
BROOKLYN, NEW YORK

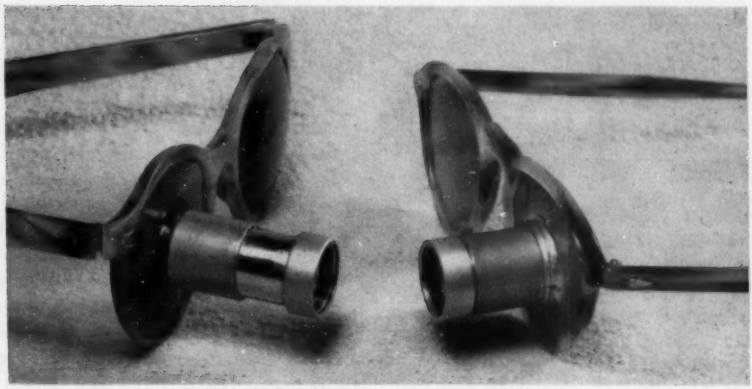

FIGURE 1.

THE adjustable telescopic visual aid is a monocular unit, mounted in a frame which has an occluder for the second eye (fig. 1). The lenses have a magnification of 2.2. They are incorporated in a metal tube, that can be extended to adjust the focus in a graduated manner. The tube with the adjustment closed measures 3 cm.; with the adjustment open, the tube measures almost 4 cm. The diameter of the tube is 17 mm.

This device enables a patient with subnormal vision to view either near or distant objects merely by extending or retracting the outer end of the tube. Adjustments for intermediate distances are easily made. The unit has proved to be of great value to some patients with diabetic retinopathy, in which cases rapid visual changes often occur.

Presented as a *New Instrument* at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

CAVERNOUS HEMANGIOMA OF THE OPTIC DISC AND RETINA

WINDSOR S. DAVIES, M.D.
DETROIT, MICHIGAN
MARK THUMIM, M.D.
MIDDLETOWN, CONNECTICUT

ANGIOMATOUS tumors of the retina, optic nerve and disc are relatively rare. Reese[2] subdivides these angiomatous tumors into the following categories: angioblastic, capillary, cavernous and racemose. In his classification, angiomatosis retinae (von Hippel's disease) is viewed as belonging to the angioblastic group.

The cavernous type of hemangioma of the retina, optic nerve and disc is extremely rare. Garrow and Loewenstein[1] reported a case of intraretinal hemangioma which was connected by a stalk to a choroidal hemangioma. Weskamp and Cotlier[3] reported a case of a 17-year-old girl having a facial angioma, a cavernous hemangioma of the brain verified histologically, and a retinal hemangioma not verified histologically but in ophthalmoscopic characteristics entirely different from von Hippel's disease. Reese[2] reported a case of a 5-year-old boy showing a tumor of the optic disc, which he believed to be a cavernous hemangioma. The tumor slowly progressed over a period of ten years and gave rise to repeated small hemorrhages.

REPORT OF A CASE

W. K., a 34-year-old white male, was first seen by one of us (M.T.) in July 1954. His chief complaint was blurring of vision in the right eye of three months' duration, noted when viewing television.

This man is a chronic alcoholic who now subsists mainly on liquor and paraldehyde. He has had grand mal seizures on occasion, always following heavy drinking. Visual acuity was reported in 1935 as right eye, 20/30 correctable to 20/20; left eye, 20/20. An electroencephalogram in 1950 gave normal readings. Roentgenograms of the skull in the past two years showed no abnormal condition.

This man is tall, thin, red-haired and heavily freckled. The external eye was normal. Visual acuity of the right eye was 20/70, unimproved with correction. Left eye, 20/20. Ocular tension normal. Fundus examination of the right eye revealed a more or less round, well-demarcated, elevated mulberry-like tumor which was mottled gray and black, with blood vessels coursing over it (fig. 1). It was four

FIGURE 1.

to six times disc size and overlapped the optic papilla. A fundus examination indicated that the left eye was normal. The general physical examination revealed a tremor of the hands and moderate enlargement of the liver. Findings from repeated neurological examinations have been normal. The blood count and urinalysis were normal. The report on a blood test for syphilis was negative.

Dr. Davies is from the Kresge Eye Institute and the Wayne University College of Medicine, Detroit.

Presented as a *Clinicopathologic Case Report* at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

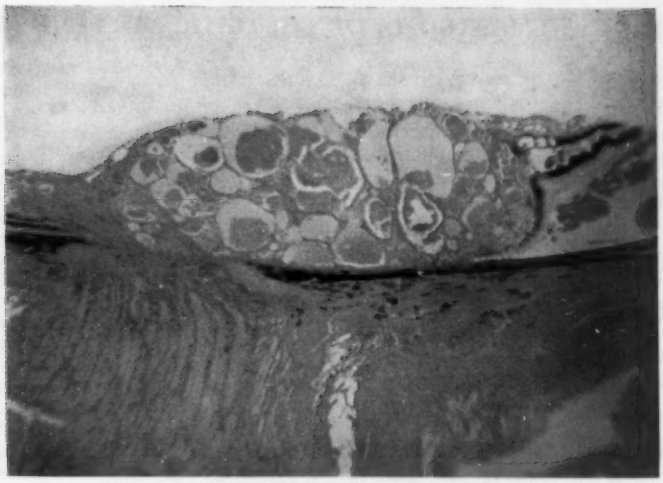

FIGURE 2.

In the differential diagnosis, tuberous sclerosis, angioma and melanoma were considered. The consensus in consultation was that melanoma must be strongly considered, and the eye was enucleated.

Pathologic Examination

Right eye: The eyeball measured 25 mm. anteroposteriorly, 25 mm. horizontally, and 24.5 mm. vertically. There is a tumor involving the retina and optic papilla (fig. 2) measuring approximately 5 mm. in width and 1.5 mm. in height. It impinges on the physiological depression, but does not obliterate it. The tumor reaches the level of the lamina cribrosa but does not penetrate it. The tumor occupies the full thickness of the retina and is made up of large simple vascular spaces lined by endothelium and engorged in great part with red blood cells. The retinal vessels course over the tumor surface. There is no apparent penetration to or connection with the choroidal vessels. There is a flat detachment of the retina with subretinal hemorrhage temporal to the tumor. The adjacent retina demonstrates cystic degeneration.

Diagnosis

Cavernous hemangioma of the retina and optic disc.

SUMMARY

A case report has been presented in which preoperative diagnosis entailed the differential diagnosis between tuberous sclerosis, hemangioma and melanoma of the retina and optic disc. The subsequent pathologic study revealed this tumor to be a very rare cavernous hemangioma of the retina and optic disc.

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TRANSACTIONS

American Academy of Ophthalmology and Otolaryngology

Official Publication of the American Academy of Ophthalmology and Otolaryngology
Published under the direction of the Editorial Board
WILLIAM L. BENEDICT, Rochester, Minnesota, *Editor*
W. HOWARD MORRISON, Omaha, Nebraska, *Associate Editor*
HENRY L. WILLIAMS, Rochester, Minnesota, *Associate Editor*
Printed by Douglas Printing Company, 109 North 18th Street, Omaha 2, Nebraska

All communications regarding the TRANSACTIONS should be addressed to
William L. Benedict, M.D., LL.D., Executive Secretary-Treasurer,
American Academy of Ophthalmology and Otolaryngology,
100 First Avenue Building, Rochester, Minnesota

HOME STUDY COURSES

To keep "up to date" the doctor must spend some time in his study. A good way to save time and accomplish more is to make use of abstracts, reviews and digests of the literature. There are in some journals annual reviews of the year's literature on special subjects, and often the author kindly supplies the bibliography as well. Some time must be spent in browsing with nothing particular in mind but to look over the field for what's new. Like reading a newspaper, the effect is to plant listening posts in the mind ready to pick up any interesting news on old topics or simply to keep track of the growth and development of everything in general.

Now, so far as it goes, desultory reading gives the necessary background for sharper focusing on special items. But for clear understanding of any applicable techniques, the field of reading must be cut down to size and attention to detail stepped up. Here is where memory begins to work and store away facts in orderly fashion so that they may be called on and applied when needed.

The world is full of works on any subject the doctor wants to pursue. Some are very worth-while classics; they have stood the test of time and are considered fundamental. Teachers use them all the time and urge students to become familiar with them. With a comprehensive knowledge of the classics, the student will build his own line of thought and direct his own research in the light of accepted scientific data.

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Academy plan. That the Academy Home Study Courses are worth while has been recognized by the American Boards for several years, and candidates for certification are encouraged to subscribe to them. Many letters from subscribers praise the courses, and a few subscribers repeat the course after five to ten years. There is no better way for a busy doctor to keep abreast of the times than to spend stated hours on general reading, to devote a portion of each week to a serious study in the basic science reference lists of selected readings, and to answer the questions in writing. Remember that the faculty which checks your answers and comments on your replies is composed of the outstanding teachers in this country and you cannot possibly study under them in any other way.

This is just one of the many services provided by your Academy, an institution devoted to education and instruction in medicine with special reference to ophthalmology and otolaryngology.

HANS BRUNNER, M.D.
1893-1955

Dr. Hans Brunner passed away July 15, 1955, at the Harlem Eye and Ear Hospital in New York City. He died as he lived, having thoughtfully studied his own case with the thoroughness so characteristic of his keen observation. It would undoubtedly be displeasing for him to know that the origin and development of the malignant growth in his nasal accessory sinuses was not completely analyzed histologically to be reported for posterity. Such was the man, one of the world's most brilliant teachers and distinguished otolaryngologic litterateurs who, as guest of the American Academy of Ophthalmology and Otolaryngology, was made an Honorary Fellow in 1935, little knowing that in 1938 he would have to leave his beloved Vienna under the barbaric auspices of an oppressor. Even then it was with reluctance that he left to join the faculty of the Department of Otolaryngology of the University of Illinois.

Dr. Hans Brunner was born of the union of Berthold and Fanny Brunner on May 3, 1893, at Zwittau, Moravia, in what later became part of Czechoslovakia. His parents moved to Vienna shortly thereafter, and from 1904 to 1912 he attended the K. K. Elizabeth Gymnasium for his preliminary education. Then from 1912 to 1919 he attended the University of Vienna; and its Surgery Clinic, from 1919 to 1920. It was at the age of seven that his relationship began with Professor Gustav Alexander — as a patient with a chronic mastoid infection. This condition brought him into continuous contact with Alexander, who performed a radical mastoidectomy on Brunner at the age of eighteen. Alexander, himself a musician (pianist), was accustomed to having his numerous talented assistants come to his home for musical evenings. Brunner always insisted that his first love was music (for he was a vigorous pianist, went into ecstasy over Tristan and Isolde, but also had great admiration for Porgy and Bess) but he was so drawn to Alexander's personality that he took up otolaryngology.

In his undergraduate work he was especially interested in anatomy and pathology of the central nervous system, and in his graduate activities his inquiring type of mind led him into all head and neck areas. A keen analytical mind and love of detail led to an enormously productive list of contributions to the literature, the most monumental of which was the Alexander, Marburg and Brunner three-volume work on "Otoneurologie des Ohres." His professional association with Alexander began in 1920 and lasted until the latter's untimely death at the hands of an assassin in 1932, when

Brunner, as Dozent, carried on as Chief of the Ear, Nose and Throat Department of the Poliklinik, a position he held until 1938.

During Dr. Brunner's entire association at the Poliklinik, he was one of the most sought-after teachers among those for whom Vienna became the postgraduate mecca of otolaryngology. He was never dull, never stood in one place, never repeated himself; he made each point with enthusiasm and vigor and with the aplomb of a circus ringmaster. While he spoke and read German, French and English, it was to the latter he frequently referred by saying, "Fifty per cent of my success is my rotten English." In the same vein was his remark that music was his love, but he had to practice medicine to make a living. This he did in Vienna and continued to do in Chicago from 1938 to 1948, when he left to take a position with the Veterans Administration in Newark, New Jersey, where he was to remain until his death.

Dr. Brunner was a Diplomate of the American Board of Otolaryngology, and his memberships included the Otological Society of Vienna (of which he was past president), numerous neurological societies, the American College of Surgeons, and the Collegium Otorhinolaryngologicum.

Dr. Brunner's bachelorhood ended in 1951 when he married lovely Wanda Neuman, whom he had known and admired since early childhood. His exuberance and exhilarating effect on his audiences and students was deceiving for he was never truly a happy man unless, by implication, it was while in the concert hall or cavorting with the musical immortals at his piano.

When he came to the University of Illinois in 1938 on a fellowship, which was to lead to a professorship in otolaryngology, he had already received world acclaim on the basis of such books and publications as "Textbook of Neurology of the Ear," "Otological Diagnosis of Brain Tumors," "Anatomy of the Olfactory Nerve," "Intracranial Complications of the Ear," and over two hundred articles in the world's literature. Brunner continued to add to this list of contributions even in the months before his death, when he was racked by murderous pain and had a left-sided proptosis and an oculomotor and abducens paralysis. He was aware of the significance of the symptoms that he had so often analyzed for his students, and courageously prepared his family and his friends for what was to be his inevitable end. The letters written in the last months of his illness were masterpieces of factual interpretations of signs and symptoms, never vindictive or bitter but in quiet acceptance of his lot. He was indeed a brave man. He put his scientific house in order by placing his most cherished possessions, his histological collection, in a box for shipment to the University of Illinois. Then with his characteristic manner of ending his lecture, he said "Schluss."

FRANCIS L. LEDERER, M.D.

TRAINING IN GENERAL SURGERY FOR OTOLARYNGOLOGISTS

HANS VON LEDEN, M.D.
CHICAGO, ILLINOIS

FOR several years the problem of general surgical training for prospective otolaryngologists has presented itself at the annual meetings of this Teachers' Section. Surprisingly enough, in many instances it apparently has been taken for granted that such training was a desirable, if not actually necessary, addition to our training program. As an otolaryngologist who has had special training in general plastic and reconstructive surgery, and who was attached to a general surgical unit during part of his military career, I have listened to these discussions with increasing confusion. This essay is intended to clarify some of the misunderstandings that appear prevalent among our own group, and to arouse the active interest of the teachers in our specialty to the consequences of the suggested changes.

Training in general surgery for otolaryngologists—is it wise? In order to familiarize myself with the positive approach to this question, I requested several active proponents of this measure to enumerate the reasons for their stand. Their responses may be briefly summarized under the following six headings:

1. The American Board of Otolaryngology and the American College of Surgeons desire such training for our residents.
2. A year's training in general surgery would result in better trained otolaryngologists, particularly in radical surgery of the head and neck and in the management of such cases.
3. Such training in general surgery would increase the respect for our specialty among other surgeons.
4. The specialties of urology and proctology require training in general surgery—why don't we?
5. A year's residency in general surgery would increase the familiarity of the otolaryngologist with surgical instruments.
6. Training in general surgery would increase our supply of residents.

Since the last three arguments appear less weighty and less controversial, let us consider them briefly at this time:

Major surgical procedures in the specialties of urology and proctology involve the abdominal cavity, which has long been the province of the general surgeon. While it may be essential for prospective urologists and proctologists to acquire detailed knowledge of abdominal surgery and its complicated preoperative and postoperative management, it is hard for me to visualize how such training would materially assist an otolaryngologist in his practice.

Similarly, if training in general surgery is deemed desirable in order to acquaint our residents with their surgical instrumentarium, would it not be equally logical to assign such a resident to the dental service to master the complicated endaural drill?

From the Department of Otolaryngology, Northwestern University Medical School.

The Teachers' Section: Otolaryngology was presented as a *special Program* at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

Again, I find it difficult to see how the detachment of a prospective otolaryngologist from our training program to the department of general surgery and to surgeons with entirely different interests could possibly increase the supply of our own residents or their attachment to our specialty.

We now approach the more important arguments in favor of general surgical training, and these suggestions merit detailed study and our most careful consideration. All of us, no matter how good our training, discovered certain chinks in our armor when we left the shelter of our classrooms and the ready advice of our teachers and settled down on our own. If these deficiencies could be prevented among our students by the simple expedient of subjecting them to a year's training in general surgery, all of us here would enthusiastically support this move. But is this to be expected?

The American Board of Otolaryngology has wisely refrained from any official commitment, although some of its officers have expressed their personal views pro and con. The American College of Surgeons, however, has been far less circumspect. The current requirements of the College for certification in Otolaryngology[1] state explicitly, "Training in general surgery is recommended as preliminary to graduate training in Otolaryngology."

This recommendation is supplemented by the following remarks, which I call to your special attention:

> This (training) may often be obtained in institutions which are not able to give a full three-year or four-year program in general surgery. However, they are able to provide very satisfactory training in preparation for one of the surgical specialties.

Are we to understand that our residents should receive their training in institutions which are not approved for the training of general surgeons?

Apparently so, for the Internship and Residency Number of the Journal of the American Medical Association[2] lists four types of general surgical residencies. The first category includes those hospitals approved for four years of training by the Council, the American Board of Surgery, and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery; this list includes most of the university hospitals, and the large charity institutions with university affiliation. The hospitals in the second category have been approved for three years of training by the same authorities; this category consists of the larger community hospitals, generally staffed by surgeons with university appointments. The hospitals in the third category have also been approved by the same authorities for training in surgery, with the understanding that such training will be of less than three years' duration; this group is made up of smaller community hospitals and specialized institutions. The final group is not approved by the American Board of Surgery or the American College of Surgeons for surgical residents, but it is described by the Council as "offering satisfactory training of one or two years' duration in preparation for residency training in the surgical specialties only." I recommend the list of these institutions for your perusal.

Are we to understand that residencies in general surgery disapproved by the American Board of Surgery and the American College of Surgeons for their own trainees are good enough for us? Can we expect our residents to receive better training in the intricate surgery of the head and neck in these institutions? Is this type of training likely to increase the respect our graduates enjoy among other surgeons? Or are we merely to provide a pool of assistants for the surgeons in those small hospitals

which have not been approved for the training of general surgeons?

I, for one, do not feel that the specialty of Otolaryngology has reached such a low. Accordingly, with the permission of our Chairman, I circulated a questionnaire among the Chiefs of Surgery of one hundred university hospitals and large charity hospitals across the nation, chosen from the first category mentioned above. This questionnaire was to explore the feasibility of a one-year residency in general surgery in these teaching institutions. It was further designed to ascertain the assignments of surgical residents during this year, in order to determine their practicability for the budding otolaryngologist.

Here I must digress for a moment to express my sincere gratitude to these extremely busy departmental chairmen, ninety-one of whom responded to my questionnaire within thirty days, many with detailed personal remarks. It is indeed a great tribute to the leaders in our own specialty to note the esteem of these outstanding surgeons for our Academy, and particularly for this Teachers' Section, as evidenced by their prompt response.

Of the ninety-one replies received, fifty-five, or 60 per cent, discounted a one-year residency in general surgery at their institutions. Nineteen replies indicated that one-year surgical residencies were now available at these hospitals, and seventeen intimated that special provision for such training could be arranged, but *only* for residents accepted for a full training program in one of the surgical specialties *at their own* institution. My further report on this questionnaire will therefore be limited to these thirty-six teaching institutions, most of which submitted detailed information regarding the assignment and training of surgical residents during this one-year period.

How much surgery of the head and neck may we reasonably expect our residents to observe during a year's training in these hospitals? None in one institution, where the entire time of the resident would be divided equally between surgical research or pathology, and outpatient clinics. Five institutions suggest six months on this type of an assignment, and eight others recommend an average of three months. Will such a schedule enable our residents to learn surgical technique and management?

What about the training our residents would receive on the wards and in the operating room? Replies to this part of the questionnaire are less specific. Eleven of the thirty-five remaining institutions give no breakdown of these assignments. Three indicate that the work would be confined to straight general surgery. Five surgeons state that their residents obtain training in general surgery and all surgical specialties during this one-year period. Of the remaining institutions, twelve include neurosurgery in their assignments, ten orthopedic surgery, eight thoracic surgery and urology, seven proctology, six plastic surgery, three anesthesia, and two gynecology and otolaryngology. While eight of the surgeons mention head and neck surgery in connection with this training, they point out that such cases are assigned to the general surgical services.

Would the results of this broad training, ranging from brain surgery to proctology, and from orthopedic surgery to urology, justify the expenditure of an entire year in the professional life of our budding otolaryngologist? The prescribed period of three years of training is barely sufficient to master all phases of our own field, if we include faciomaxillary surgery, peroral endoscopy, audiology, and the associated basic sciences.

Management of the patient before and

after surgery should form part of our own teaching; otherwise we have no right to call ourselves surgeons. Perhaps we should encourage courses in the newer aspects of electrolyte and fluid balance so that we may all keep abreast of these new developments, as they relate to our specialty.

Let us be reasonable and admit that not all otolaryngologists can excel in all branches of their chosen field, just as no general surgeon is equally competent in all divisions of his specialty. Our three-year course is but intended to acquaint the budding specialist with the many facets of our specialty. It does not seem too much to ask of a laryngologist to secure additional training in head and neck surgery if he desires to perform the radical operations for cancer of the head and neck; general surgeons are encouraged to obtain additional training for this highly specialized work.

It would appear more reasonable for this group of wise teachers and counselors to assure adequate training facilities in head and neck surgery for the small group of interested postgraduate students at some of our teaching centers than to recommend a year's training in general surgery for all of our residents. Ideally, such head and neck services should be under our own control or the joint supervision of the interested specialties, for no progress can be expected if one specialty arrogates unto itself the right to dictate the training of other groups.

If our Teachers' Section would assume the leadership in this program, and if we were supported in this endeavor by our great Academy, there would be no need to look to other specialties for the training of our successors. Only if we ourselves lead the way can we expect to maintain our high standards, and assure the respect of our colleagues in other branches of medicine and surgery.

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1. Bull. Am. Coll. Surgeons, 40:409-410 (Sept.-Oct.) 1955.

2. J.A.M.A., 159:343-351 (Sept. 24) 1955.

DISCUSSION

DEAN M. LIERLE, M.D., Iowa City: The American Board of Otolaryngology has not taken any definite stand in regard to requiring general surgical training as a prerequisite for residency training in otolaryngology. It has accepted a year of general surgery in lieu of one year of training in otolaryngology.

If a year of general surgery should be required as a prerequisite for training in otolaryngology, it would be necessary for the general surgeons to design a course for the specialists that would be streamlined. We have had a number of residents who have had some general surgery before taking otolaryngology, and they have frequently stated that it was a waste of time. I feel that this may be true in some instances because the resident was subjected to the routine training designed for general surgeons. However, I do not agree with them in general. It is my opinion that all residency services in otolaryngology should have some teachers on their staff who have, in addition to training in otolaryngology, some general surgical training. When this occurs, there will be little need for residents in otolaryngology to have preliminary training in general surgery. However, it will be many years before we can attain this goal; in the interim I feel that it would be beneficial to have some training in general surgery as a prerequisite for a residency in otolaryngology, provided the training in general surgery is designed for the surgical specialties.

BENJAMIN H. SHUSTER, M.D., Philadelphia: We have been listening to the idea of adding years to the training of the otolaryngologist because we wish to carry out a certain procedure. I guess we get hardened to this idea. It does not worry me any more, but it is disturbing.

English is such a wonderful language. One can use so many words to make little things look big. I think it is about time that we came down to earth to find out where we stand.

If we keep on legislating ourselves in this fashion, adding year after year to our specialties to do this, that and the other thing, we are going to legislate ourselves right out of existence.

Last year, Dr. Morrison read a statistical report stating that 85 per cent of the men

graduating from medical schools were going into general practice. They do not want to go into any specialty.

Recently I heard the Dean of the Medical School of the University of Pennsylvania state that four years ago there were five applicants for each opening available in the medical schools in the United States. The number dropped down to three, or two, and last year it was one; if this keeps up, we will be begging people to study medicine. I think that we are just adding burden upon burden on the young doctor for no good reason whatsoever. There is no necessity for the lengthy programs.

We want to train doctors in general medicine as well as in specialties, and that is what we ought to be doing—not training a lot of fellows who talk a lot, write a lot, and report on research problems which never would be missed. We want to train doctors—not writers, and it is the latter whom we encourage by all these additions to the curriculum.

I notice that Dr. Lierle has toned down a little bit. He was very enthusiastic about a year of surgery. I think that he does not feel so strongly about it now, unless the trainee wishes to go into the teaching field.

The words "a course of a year in the training of general surgery" sound beautiful. What in the world do they get in general surgery that they do not get in otolaryngology? To learn the armamentarium of surgery? Don't you know what a hemostat or scalpel looks like? What is a student in otolaryngology going to get from a year of general surgery? If he does not know what a hemostat or Allis forceps looks like, is he going to put in a year to learn that?

If you want to teach them electrolyte and water balance, can't we do it in otolaryngology instead of in a year of general surgery? Certainly in otolaryngology the young otolaryngologist is not going to be confronted with a gall bladder operation, a gastroenterostomy, a gastrectomy, or anything of the kind. For him, training in those operations is just a waste of a lot of time. The *general principles* of surgery should be part of the otolaryngologic training.

We enter a fellow for a year of training, and when he comes out, we say, "Oh yes, he has had a year of general surgical training. Now he can be a fine ear specialist."

The sooner we cut out the nonsense, I think, the sooner we will have more people studying otolaryngology.

Throughout the country, there are offers of $15,000 or $20,000 a year for a young man well trained in otolaryngology, with no takers. No qualified men are available. Yet suggestions are made to increase the burden so that there will be fewer takers each time.

If one wants to do fenestrations or neck surgery, he can go through a basic course in otolaryngology and then learn these procedures by taking extra courses at his convenience. If one wants to do fenestrations, he can go to Shambaugh or Lempert and do fenestrations, putting in as much time as it takes him to learn. He should not have to put in five or six years' time in a hospital, with nothing to do but clerical work, in order to say that he has had five or six years of training in general surgery, orthopedics, and what not, that he will never use.

The whole thing is ridiculous when one analyzes the situation.

I remember that, when I was a young man, DaCosta once said to an intern, "What in the world are you complaining about when I tell you to take out some glands in the neck?" I was raised on the glands in the neck when I was a young man, and now you kick about it. You have to do this kind of work in the beginning.

That is all radical neck surgery is, taking out the glands and taking off a piece of muscle, cutting off the sternocleidomastoid, taking out anything you want, but leaving in the vagus nerve and carotid artery. Do you have to have a year of general surgery to do that?

I have seen general surgeons engaged in surgery of the neck poking here and there with knives and scissors. They did not know the trachea from the esophagus. One traced a branchial fistula to the larynx, and said, "That is where it comes from." That is the general surgery aspect of the thing. We are trained in anatomy and embryology. What can general surgery offer us that the course in otolaryngology does not?

The Board of American Surgery and the American Board of Surgeons are just a number of men getting together in committee at a desk and deciding what to impose on the student of a specialty.

I believe that the young otolaryngologist should be given a basic training course of eight months, as is given at the University of Pennsylvania Graduate School. There, physiologists and specialists in the basic sciences give him lectures in their specialties almost every day throughout the course. In anatomy, he is taught anatomy of the neck and surgical approaches to it.

After that first year, he ought to have one year of residency at a good hospital where they give him things to do. Then, if he wants to take further training, he should not be tied down to that same hospital. He should be allowed to go to a place where he can get what he needs.

My son went through the whole business, took his three years and another year; but after he got through I had to send him to Lempert to take a course in fenestration. Now he wants to take additional training in neck surgery; that is what he should do.

If he had had eighteen months of postgraduate work in the first place—a one-year residency and eight months of basic training—he would have had eighteen more months to choose what he wanted to do, could have taken the courses as he went along and could have chosen the fields he wanted instead of having had imposed on him a lot of material which will be of no use to him and which wasted his time.

The sooner we stop imposing useless training upon the young men—with a loss of time and expenditure—the sooner we are going to get more and better residents; and if someone wants to become a fenestrationist or wants to do radical neck surgery, let him do so at his convenience. As to the relation of this training to Board certification, I think that does not make any difference. As long as the individual is in practice, gaining in experience, there would be no objection if the Board should require two or three more years of practice before certification. With such a shortened program, more men would be interested in the specialty—I am sure without detriment to the patients.

Teachers' Section: Otolaryngology

FACTORS MOTIVATING CHOICE OF PROFESSION*

WENDELL L. WYLIE, D.D.S.
SAN FRANCISCO, CALIFORNIA

BY INVITATION

IN 1951 a group of University of California Faculty representing six professional curricula devised a method whereby systematic enquiry into motivating factors might be made. Using the ubiquitous IBM card, 1,569 students in the University have been examined to date in a procedure which is easily completed in twenty minutes. It was arranged to administer the test early enough after initial enrollment that "beginning" students would not be affected by the attitudes of their elders in the student body, and students completing the course of study were tested late enough to portray the point of view of the final weeks. The test was designed to provide a sort of universality so that it might be given to the six widely differing groups of students. Pains were taken to assure each group at the time of the test that the responses would in no way affect the scholastic status or professional future of the respondents.

The procedure employed is as follows: Each participant in the study was supplied with a deck of cards; on each card was printed a single "topic," a possible factor influencing him to choose his particular professional course. The instructions were simple: To sort the entire stack into two groups—relevant factors and irrelevant factors. The group of relevant factors was, further-

*A condensation of an article with the same title in Journal of Dental Education, 19:159-172 (May) 1955. This condensation was read at the meeting of the Teachers' Section: Otolaryngology, Oct. 9, 1955, by Dr. Lewis F. Morrison.

From University of California Medical Center, College of Dentistry, San Francisco.

This study was financed in part by the American College of Dentists and by research funds of the University of California.

more, to be sorted into rank order of importance. In compiling the data, in order to arrive at "adjusted relative values," not only was weight given to the frequency with which a particular topic was designated as being "relevant" but rank order of importance was also made to count insofar as the first seven were concerned. It was decided that topics ranked as eight or below need not be seriously considered insofar as standing relative to other topics is concerned. Finally, the data were adjusted to take into account the fact that separate groups under study differed in size.

The most convenient detailed analysis seems to be by topic, proceeding from those of highest "adjusted relative value" for the total groups down to the least. The topic and the code letter used are as follows:

J—Native interests and aptitudes which make it natural to pursue this field in preference to all others.

K—Expectation of a substantial financial income and economic security.

V—This vocation allows one to meet many other people.

L—Expectation for advancement in position, social prestige or responsibility.

M—Influence of a person actively engaged in this field.

O—Previous experience in an occupation closely related to your expected career.

Z—Some significant factor which has not been adequately covered in the other categories.

This is obviously a portmanteau category intended to, in part, relieve the frustrations of those who could find nothing in the first 25 cards to satisfy their urge for self-expression, and partly to indicate to the investigators how well they were able to guess beforehand the motives of the students. In view of the fact that for the total of all groups the adjusted relative value of item Z was only 33, the contrivers of the test are perhaps entitled to some degree of satisfaction. After all, they had only 25 entries of their own against a field of infinite number and they came off pretty well. However, there is a difference between the entering and the senior students. Freshmen rated only 17 points; whereas the seniors gave it 42 points.

F—This vocation permits one to work independently of other people.

D—Working conditions and hours seem desirable.

R—An agreeable opportunity which materialized unexpectedly.

The wording of this question was intended to provide a wolf in sheep's clothing. A more blunt manner of expression would have been, "Have we the G. I. Bill of Rights to thank for your presence on this campus?"

C—Close relationship of this vocation to another which could not be attained for some reason.

E—Vocational guidance by a professionally trained counsellor or special test.

G—Influence of a particular teacher or a class in school.

P—The chance to avoid or delay some less desirable experience.

Here the investigators did not actually ask whether the student went into a profession to avoid, or at least delay, military service, but the responses suggested that they were following a promising lead.

B—Influence of a relative or a close friend who is not in this or related fields, but has always wanted to be.

H—Some environmental or geographical factor, such as the opportunity to travel or reside in a community where the occupation was the major interest of almost everyone.

Fundamentally an irrelevant question that inadvertently caught a number of senior dental students, their responses being 52 to the freshmen responses of only 6.

X—An impression gained from reading a book, a pamphlet or other literature.

W—Because of previous training, it now seems impractical to prepare for anything else.

Y—Influence of a relative or a close friend who has not himself had aspirations in the field.

I—Experience gained while in the military service.

S—An existing setup such as a partnership with a relative or friend which would make it advantageous to follow a given career.

M—Limited financial resources of time for schooling and technical training.

T—Some health, physical or age limitation.

like the total group, put native interests and aptitudes at the top of the list so that it rates 100 points for "total medical students" and for "total dental students." The dental students, however, give almost equal preferment to "expectation of substantial financial income and economic security" (99 points). Medical students rate this at only 52, and it is at fourth place rather than second on the total list.

Medical students and dental students attach approximately equal importance to the prospect of meeting other people in their daily work, each giving it 53. However, dental students are more im-

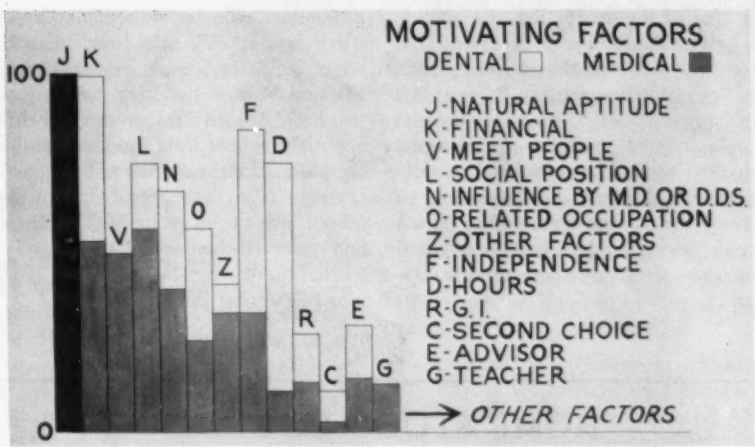

FIGURE 1.

Q—An opportunity to fulfill one's financial needs immediately.

A—Pressure by parents or by circumstances not of one's choice.

U—An impression gained from motion pictures or from a radio or television program.

There are notable differences between dental students and medical students in their responses (fig. 1). Both groups, pressed with "advancement in position, social prestige and responsibility" (76) than are medical students (57).

Being entirely on one's own (F) is more important to dental students than to medical students in a ratio of 8.2 to 3.0. For dental students, "conditions and hours" (D) is a third topic of preference, rating 75 points; medical students give it only 8.

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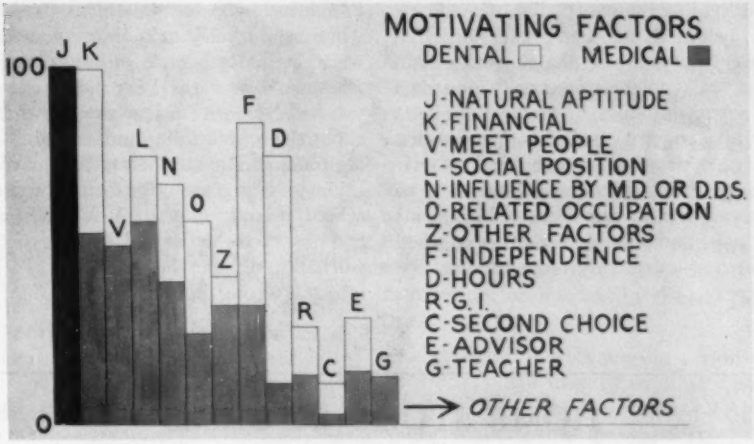

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The decision to enter medical school is more often than not an independent one, or at least it may be said that influence of others plays a greater role in sending men to dental school than it does in arousing interest in the profession of medicine. One even suspects that there is little inclination on the part of physicians to urge their profession upon young men.

It is evident from these data that in medical schools there are many young men who have always wanted to be doctors, who have never given any serious thought to being anything else, and who wanted it badly enough that they are willing to overlook a number of "practical" considerations which would either argue against the profession of medicine or in behalf of another profession. Just as it used to be said that a young man had a "call" to the ministry, so it seems that a large number of medical students gravitate toward medicine for reasons which are not readily verbalized in self-seeking terms. Medical schools are to be envied for having these dedicated individuals, and should perhaps be studied to see how effectively they use this opportunity.

SUMMARY

This survey was not a serial study, but rather a cross sectional one, so any differences between the beginning and finishing students should be attributed not only to changing attitude (as might be proper in a serial study) but also to inherent differences between the samples. The data strongly suggest that the samples are different from one another so far as beginning and finishing students are concerned. One is tempted to conclude that the relatively high percentage of veterans in the classes designated as finishing classes affected the responses to certain topics.

I seldom examine these data without recalling the comment of one of the dental seniors who had taken his predental work in Berkeley at a time when there were 26,000 students on that campus. Because it was the very first time the test had been given, I was pretty earnest about the whole thing and vulnerable to leg-pulling. He caught me off guard by saying, "My reason for being in dental school wasn't on your list." When he had observed the desired amount of consternation in me, he explained, "I got into the wrong line at Berkeley."

HOME STUDY COURSES

Application forms are now available for the 1956-1957 Home Study Courses. They may be secured from Dr. William L. Benedict, Executive Secretary-Treasurer of the Academy, 100 First Avenue Building, Rochester, Minnesota. The Courses begin September 1, 1956. Enrollment should be completed before August 15.

The Home Study Courses faculties consist of about forty members. They are authorities on the various subjects covered, and most of them are connected with leading teaching institutions. This ensures coordination with general programs of postgraduate education in these specialties, and enables those who are responsible for the content of the Courses to make them of maximum value as a supplement to other training available.

Teachers' Section: Otolaryngology

IS VOLUNTARY TEACHING ON THE WAY OUT?

I

JOHN R. LINDSAY, M.D.
CHICAGO, ILLINOIS

THE subject under discussion is that of the part-time versus the full-time system as it affects teaching.

Every medical school and every department of otolaryngology is concerned with three types of activity on the part of its staff: clinical practice, teaching and research. Of these three, the two functions which have been of immediate importance in raising the standard of medical care are clinical practice and teaching. The function which is of greatest importance in promoting scientific progress and elevating the standing and prestige of this specialty in the future is the development of research within its field.

The question of full-time or part-time service is directly concerned with both research and teaching. The idea of full-time service in the clinical branches of medicine was originally proposed as a means of promoting scientific progress through research.

The experience in the preclinical departments of some medical schools before the turn of the century had already demonstrated the advantage of the full-time system in those areas both to teaching and to research. The proponents of the full-time idea recognized that the development of research in the clinical branches was necessary for scientific progress. They assumed that the full-time system was essential to achieve this objective. At Johns Hopkins Medical School a controversy existed over this question for years. The main proponents of full-time were represented by Welch, the pathologist, and the main opponent of the idea was Osler, the great clinician and teacher, who was conscious of the importance of training good clinicians. Osler feared that if the main emphasis were placed on research, the quality of teaching and of clinical practice would suffer.

It was recognized by the advocates of "full-time" that the development of a research program would require the services of men who had had advanced training and experience in research. They favored the recruiting of heads of clinical departments from the country at large, with emphasis on intellectual capacity and research productivity rather than on success in clinical practice.

The need for a change in conditions which prevailed in most medical schools was brought out by the studies of Abraham Flexner with the support of the Carnegie Foundation. His reports on American and European medical schools apparently attracted the attention of Mr. Considine Gates, adviser to the Rockefellers.

In 1913, supported by a gift from the General Education Board, the "full-time" plan was put into effect at Johns Hopkins under the guidance of Welch.

It was not long until other schools began to introduce the full-time principle. It was started at McGill shortly

after World War I, and in 1927 the University of Chicago opened its new medical school with the clinical staff on an almost completely full-time basis.

Since the introduction of the full-time plan, several variations have been in operation in different medical schools. These modifications have been put into effect in most cases for practical reasons, but the experience gained from them should point up some of the defects and advantages in each system.

Every medical school is fundamentally concerned with three objectives: the highest grade of clinical practice, the most effective teaching, and the fostering of research.

Teaching of clinical medicine requires the services of practicing clinicians. In the specialty of otolaryngology, this has been traditionally carried out on a part-time basis. Certain factors recently have tended to increase the teaching load. The specialty, and this group in particular, is trying to bring the number of hours allotted to otolaryngology up to a more adequate standard, which would mean an increase in most schools. Also, the trend is to the case system of teaching with less emphasis on formal lectures. This places a greater demand on the instructor's time. While this increased teaching load can be handled on a part-time basis, there are some advantages offered by the "full-time" principle. These include the full-time presence of the instructor on the premises and the possibility of utilizing his time as a teacher more fully by combining teaching with practice at all times. Also, if the instructor has had training in research, the mental disciplines thereby acquired should be reflected in the quality of the teaching.

The third objective of the medical school, the fostering of research in the clinical departments, has been more difficult to achieve. The subcommittee on research of the Committee on the Conservation of Hearing is directing its efforts to this objective.

The supply of men with necessary training and background to develop research programs in otolaryngology has not been adequate. Yet most departments are aware of the necessity of developing research programs if the specialty is to keep pace with advances in other fields of medicine and science, command the proper respect, and attract the best talent to its ranks.

The assumption has been made that it is not possible to find or train men who not only are proficient in research but are also competent clinicians and teachers. Yet, up until the present time there has been little real opportunity to explore the possibilities. The reasons have been mainly two.

First, there have been few opportunities for a resident or fellow to obtain training in research as a part of his preparation for otolaryngology. In only a few schools has there been any research program in this field, and when such a program has been underway, it has been conducted for the most part in preclinical departments without coordination with the clinical training program.

In the second place, the inducement to spend time in research has not been adequate.

Under present economic conditions, the aim of most men entering the specialty is to qualify for the Board examination and get into practice. As a necessary inducement to spend one or two extra years to get well started in research, there must be better financial support during those extra years and a definite prospect that the time and effort spent in research will be rewarded in later years.

If the assumption is accepted that some form of the full-time system is

the best way in which adequate time can be preserved for research, then the full-time staff positions must offer enough financial remuneration so that they offer an attractive future rather than require a sacrifice.

Several variations of the full-time method have been in operation in various departments of otolaryngology. My observations will be confined to the completely full-time system as it operates at the University of Chicago Medical School. Here group practice has been combined with a medical school.

The University operates a clinic and a group of hospitals. The clinic is essentially a pay clinic where full fees are charged, but it has provision for a limited number of part-pay or free patients. Teaching is conducted on all classes of patients, both in hospital wards and in the outpatient department.

The staff is completely full-time, paid on a salary basis. The time of each staff member is divided between practice, teaching and research. The time reserved for uninterrupted research varies with the individual, depending on his particular aptitudes and productivity. Approximately four half-days per week, on the average, are reserved for research in the Otolaryngology Section.

From the institution's viewpoint, the practice of using pay patients for teaching has been satisfactory. The income from patients has been an important factor in balancing the medical school's budget, but it has provided little support for research beyond the basic physical facilities. In addition, the research program in the Section of Otolaryngology is supported partly by endowment but mainly by special grants. Various governmental agencies have been the greatest source of support on this basis.

A program in basic research that will also fill the objective of providing advanced training to residents or fellows usually requires special skills that cannot be filled by the clinical staff alone. Full-time professional research associates, as well as technicians and helpers, have been needed and have been integrated into the program.

While the support obtained from governmental agencies on a contract basis has greatly aided research in many clinical departments, it has been accessible mainly to departments or individuals already active in research. It has not provided a solution for the main problem facing otolaryngology, which is getting research programs started.

The system at Chicago has proved to be moderately successful in the basic purpose of developing research programs in most clinical departments. The possibilities of the system have not been explored to the maximum, however. In otolaryngology, the inducement which could be offered to younger men to spend enough time in the research field to acquire an adequate training combined with clinical otolaryngology has not been adequate. This inducement must consist of more than intellectual stimulation. An extra year or two spent in a training program at a time when most men have rapidly increasing personal responsibilities should not require further financial sacrifice.

Any advantage which any form of "full-time" offers over part-time service depends upon the degree of freedom provided from clinical practice and teaching in order that time may be devoted to research activities. Advanced training in research is almost a prerequisite.

The type of full-time service in operation at Chicago is most attractive to the man whose main interest is in research. To the industrious staff member who is interested in the practice of the specialty and in teaching to an equal or

greater extent than in fundamental research, the straight salary has not been sufficiently attractive. Some system of sharing the income from his clinical efforts on a proportionate basis should prove more acceptable, promote the best grade of medical care, and attract more of the best talent.

While there have been a few outstanding examples in which research and teaching have been successfully combined with practice on a part-time basis, these have been infrequent. There can be little doubt that the best prospect for developing research programs in a greater number of departments of otolaryngology lies in the application of the full-time principle.

In recognition of the need within the specialty to stimulate research programs in the various schools, the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology has appointed a subcommittee on research. The subcommittee has undertaken the task of exploring ways and means by which otologic research can be stimulated and aided in departments throughout the country. It has directed attention along several lines, among which are:

a. Investigation of methods used in clinical departments throughout the country which may have achieved success in developing and integrating research and clinical training.

b. The assembling of information regarding possible sources for support of research in the field of otology, which will in turn be made available to departments in search of such support.

c. The revival of the grant formerly made by the Academy to be used as a prize for finished work in the field of otolaryngology, with recommendations as to how it should be allocated.

d. The assembling of information on laboratories prepared to section and help study temporal bones from patients known to have had ear disease. The planning of a campaign to stimulate interest in the collection of pathologic temporal bones throughout the country. The distribution of directions for the removal and fixation of temporal bones to assure best preservation.

e. The consideration of the best means to foster clinical investigation by members of the resident staffs throughout the country as a part of their regular training.

These are some of the ways in which the subcommittee on research hopes to be able to furnish practical help to any departments or institutions which may need such aid in developing a research program. The subcommittee has among its members representatives of all systems of teaching. It has not concerned itself as to the merits of "full-time" versus part-time teaching.

II

LAWRENCE R. BOIES, M.D.
MINNEAPOLIS, MINNESOTA

WHAT makes a good teacher, whether he is on a voluntary basis or on full time? Probably his first asset should be motivation; and his second, the capacity to teach. A third quality must be his devotion to his task.

The first quality (motivation) and the last mentioned (devotion to his task) have no variables; either he likes to teach or he doesn't, and either he makes the sacrifice to devote himself faithfully to his task or he does not. But in the second quality (capacity to teach) there must naturally be variables. The one completely gifted in ability to express himself, in imagination, in skill as a clinician or surgeon and with an attractive personality is a rarity. Most departments must be satisfied with average abilities, but if those men with average abilities have good balance and a desire to teach, and are devoted to their tasks, the end result will be highly satisfactory. I once had a teacher who maintained that genius is ninety-five per cent hard work.

Now as practical examples of what I have been trying to say, I am going to comment on my own staff of voluntary teachers. In most medical schools, these appointments are designated as "clinical instructors" or "clinical professors."

We have a total of 20 volunteer teachers. Three of them have the rank of clinical professors. Two of those are men who are anxious to teach, have unusual capacity for teaching, and do an excellent job. The other has been rewarded with this appointment because he has given long years of faithful service to the ordinary problems of teaching. Four of our volunteers are clinical associate professors. One of these has run out of gas and is of little value to our department. Another is in charge of our Veterans Hospital Service. He is a career man there, has been with the Veterans Hospital for many years and will retire in another year or two. In the days when the Veterans Service was a mediocre one, this man was the bright and shining light in the whole setup. He has long been interested in a high quality of practice, is a hard worker, and has made a valuable contribution. Of the two in the category of clinical assistant professors, one is doing an excellent job and the other has run out of gas. The sophomores in our group are the eleven clinical instructors. Five of these I consider to be outstanding. The others probably were motivated partly by a desire to have a title connected with the university, and partly by the contacts that they might make with the undergraduate students. Eight of them are men who have had their training in our institution.

When Dr. Hoople communicated with me several months ago about participating in this program, his letter contained this question:

> There can be no doubt that there is a move in this country toward full-time teaching in medical schools. Does this mean in the near future that there will be no more Departments of Otolaryngology manned entirely by voluntary men?

It is a fact that in the past twenty-five years, twelve of the fifteen medical schools that now have heads of departments on a full-time basis (no private office outside of the Department) have developed this arrangement. In addition, in this same period in a considerable

number of our medical schools, some financial remuneration has developed for the head of a department or for some members of his staff devoting considerable time to teaching.

That I am convinced that a creation of a full-time position for the head of a department is progress is evident from the fact that I recently entered such an arrangement. I did this in the belief that I could improve the status of our specialty in the eyes of my colleagues in the other medical and surgical specialties by building up a better department with a program of research, and that ultimately we could attract our share of recruits from the better talent in the senior class or among the interns.

I do believe that the head of a department should be in private practice within his institution. Whether he uses the fees he receives from this practice for his Department or personally is another matter and, in my opinion, is not vital to the issue.

I do believe that such a head of a department should surround himself with the best voluntary help that he can find and should reward those who can make a contribution in the best way that he can.

I believe that there will always be a place for the voluntary teacher who sincerely desires to teach, has some capacity for teaching, and will faithfully carry out his assignments.

III

GEORGE E. SHAMBAUGH, M.D.
CHICAGO, ILLINOIS

IF I were asked which two men in our specialty and of my immediate generation I admire the most for their scientific achievements, I should probably name Dr. John Lindsay and Dr. Lawrence Boies, our opponents in this symposium. Then if I were to name the single individual among my colleagues who most nearly approaches perfection in the art of medicine, I should probably choose Dr. Frederick Hill.

A good many years ago I interned on the medical service of the Peter Bent Brigham Hospital, closely affiliated with Harvard University. On the teaching staff were the usual eminent and successful practicing physicians on a voluntary basis. There were also a few of the then new type of clinical teacher, the full-time salaried physician. Let me describe exactly and without conscious exaggeration how one of these full-time physicians would make ward rounds. I am not certain that this particular individual has yet gone to his reward, so I shall call him "Dr. X."

Dr. X was a noted and excellent scientist who had recently come to Harvard from the Rockefeller Institute. He had a very long list of highly scientific articles to his credit, and he was exactly the sort of person favored by any university for high academic rank. Now let us make rounds with Dr. X.

In this bed lies an adolescent girl, admitted the day before, apprehensive and fearful in her illness and in this new experience, and terribly shy as well. The white coated Dr. X approaches followed by a small retinue of white jacketed interns, residents and senior medical students. With no word of greeting or reassurance to the embarrassed and

scared girl, Dr. X asks for the history. The intern steps forward and recites the history, physical and laboratory findings. Dr. X then steps up to the patient, still with no word to her or friendly smile, and placing his forefinger on her forehead and thumb on her nose, he begins his examination by lifting the tip of her nose. The girl bursts into tears. Dr. X, annoyed at the emotional outburst from this scientific problem, ignores the tears and proceeds into the physical examination, not bothering particularly to conceal the breasts as he listens to the heart and lungs. Pocketing his stethoscope, he then proceeds to discuss the differential diagnosis, including such words as "tuberculosis," "syphilitic" and "cancer" rather than the pseudonyms of "acid fast," "luetic" and "neoplasm," while we, the interns, inwardly squirmed, and the patient's cup of terrified misery was filled to overflowing.

Now I do not think that Dr. X was a sadist. He was simply a cloistered pedagogue who had always been paid a full-time salary and had never needed to learn the art of medicine. Incidentally, although he was a scholarly scientist, he was a very poor teacher.

In contrast, Dr. Samuel Levine made rounds the following quarter. Some of you may know of Dr. Levine, a very eminent Boston cardiologist. Dr. Levine is a most successful practitioner, beloved by his patients, who are many. Dr. Levine is also an excellent scientist with some fine articles and books to his credit, though perhaps they do not comprise as long a list as those of Dr. X. Dr. Levine exudes warmth, confidence and optimism toward the patient. He possesses, to a high degree, the art of medicine. And he is a marvelous teacher.

It is no accident that the Oath of Hippocrates speaks of the *art* of medicine. And it is no accident that voluntary teaching by practicing physicians has been traditional ever since the Hippocratic Oath declared that physicians will "teach them this art, if they shall wish to learn it, without fee or stipulation."

It may be that the *science* of medicine can be taught as well by the full-time salaried physician as by the voluntary practicing physician. But by and large, I very much doubt that the cloistered scientist who has never ***needed*** to learn the art of medicine can teach it as well as the successful practicing physician. And frequently the full-time salaried pedagogue will not be as good a teacher of the science of medicine as the voluntary physician. It happens that I can recall exactly nothing taught me by Dr. X, unless it be how *not* to handle a patient. I shall never forget the many, many things about the heart taught me by Sam Levine, and from him I learned much of the art of medicine.

Of what avail to graduate from our medical school a brilliant scientist who knows naught of the art of medicine? Unless he takes refuge in a laboratory, his office will remain empty while the mentally and physically sick flock to the chiropractor or osteopath across the street, who may know little of the *science* but much of the *art* of medicine. Of what use to tell our patient that we find nothing wrong with him if we fail to inspire confidence in our diagnostic ability so that he ends up in the hands of an unscrupulous quack?

It may be just a coincidence, though I doubt it, that the two teachers in our generation who have exercised the greatest influence in our specialty are not full-time but are practicing otolaryngologists who teach on a voluntary basis. I refer to Dr. Julius Lempert and Dr. French Hansel.

I am sure that there is a place for full-time teachers, especially as administrative heads of departments and in

certain types of laboratory research. But there will always be an equally important place in medical teaching for the skilled practitioner who combines the science and the art of medicine to the highest degree.

IV

IVORY TOWER VERSUS THE MARKET PLACE

FREDERICK T. HILL, M.D.
WATERVILLE, MAINE

I APPROACH this subject with some misgivings. Although I hold the academic rank of Professor in the Department of Adult Education in a liberal arts college, and as such do part-time teaching in the hospital and paramedical fields and in our specialty at the postgraduate level, I do not teach in a medical school. Consequently, such conclusions as I shall try to draw will be based upon experiences in a hospital with an active teaching program and upon examples from the liberal arts college.

In any discussion of the relative merits of full-time and part-time teaching, it would seem necessary to set some standard to serve as a common denominator. Obviously, both types of teaching must be adequate and must possess certain common attributes, or comparison is useless. So let us assume that both types will be based on a sound knowledge of the subject, interest in imparting that knowledge to others, ability to do so concisely and efficiently, and sufficient flare for the dramatic to hold an audience. Whoever lacks these qualities inevitably suffers by comparison with one who has them and makes good use of them.

All of the trappings of the Ivory Tower, including multiple alphabetical degrees, matter little if the product cannot stimulate and hold the student. In fact. the very environment of the Ivory Tower, its detachment from the everyday problems of the market place, its somewhat rarified atmosphere, its sense of seclusion, may serve in time to diminish the effectiveness of previously good teaching. Living in close contact to such a tower, I can bear witness that this may not be an excessively rare occurrence. Too often the dwellers in the Tower fail to recognize their dependence upon the Market Place for the very existence of that structure, or the value of the contributions to a teaching program that are available from the World Outside.

On the other hand, the part-time teacher may consider his teaching as merely a side issue and give it lip service only, not being willing or perhaps able, to devote the time required for adequate preparation or for effective presentation. Obviously this cannot be good teaching, and it miserably fails to fulfill its purpose.

May I digress for a minute to emphasize the importance of teaching in the hospital, apart from the formal instruction to medical students and residents. The objectives of any hospital should be Care of the Sick and Injured, Rehabilitation, Education and Research. The first of these is obvious, and too frequently it is accepted as the only objective. The importance of the second is becoming more generally recognized,

but the last two, unfortunately, too often have been considered as pertaining to a few so-called teaching hospitals. Education and Research should be objectives for all hospitals, no matter what their size or location; they should be limited or modified only by resources and skills available. All hospitals should be teaching hospitals. Unfortunately, the distinction between the teaching and nonteaching hospital too often is a valid one. Yet, a hospital which does not have a teaching program soon becomes stagnant; without some form of research it becomes sterile; and sterility is not to be desired except in the operating suite.

The hospital teaching program may be in the form of staff and departmental conferences, the clinicopathological conference, and the journal-review session. It should include the teaching of nurses (both student and graduate), technicians, record librarians, and clerks. In addition, instruction to lay groups, and classes for clergymen, expectant mothers, diabetics, and others should not be neglected. The field of prevention and rehabilitation furnishes many opportunities for teaching, which is necessary if the hospital is to fulfill its obligation to society. Such a program devolves to a very large extent upon the members of the medical staff. In a group such as ours, we have found lectures by members of the different departments to the whole staff of great value in providing better diagnoses and understanding of the problems of the patient as a whole.

This is all part-time teaching and, if adequately done, is of more practical value than that coming from the Ivory Tower.

Part-time teaching, of course, is an avocation rather than a vocation, although in the medical profession this distinction is not sharply drawn and may be evident only in the lack, or paucity, of financial remuneration. But being an avocation, it does have definite limitations in any curriculum. It can be of great value in clinical subjects, but with rare exceptions it does not suffice for the basic sciences.

In the general field of Education, part-time teaching may be successfully employed to lend color and atmosphere, to brighten some otherwise drab series of lectures, to bring in what we might call "The Voice of Experience," and to confirm and emphasize the didactic pronouncements emanating from the Ivory Tower.

I am sure you recall the definition of a professor as a person who instructs students how to meet and cope with the problems of Life, which he himself became a professor in order to avoid.

Turning to the liberal arts college for a moment, we find there is an increasing use of part-time teaching, in certain fields, to supplement the instruction of the resident faculty. Perhaps the best example is in the field of adult education, especially through scientific and technical courses, in which a great deal of the teaching is done by people from the professions, or from industry—from the Market Place, if you will. And from personal experience I can testify that such instruction is quite adequate and usually more effective than that emanating from the Ivory Tower. Even in courses for undergraduates, effective use is made of part-time guest lecturers. Broad courses in the social sciences, such as "Man and His World," depend to no little extent upon these contributions of factual information based upon actual experiences.

Replying to my request for his opinion on this subject as applied to the liberal arts college, President J. Seelye Bixler, of Colby College, wrote as follows:

On the question of full-time or part-time teachers I must, like a true philosopher with feet firmly planted on both sides of the fence, answer with a courageous and resounding "yes" and "no." Certainly we cannot get along without full-time teachers, but just as certainly part-time teachers are very valuable in their own way. . . . Apparently we have reached the point of intellectual development where the larger set of interests play their part. And the broader range of activities makes its own contribution.

The person who comes into the classroom with a background that includes these larger interests brings to the campus something that is very much needed. We have found this to be true again and again. I will cite only one example. For a year we benefitted by the presence of Dean Joseph Hudnut, formerly of the Harvard School of Design. He is a practicing architect, as well as scholar and teacher who knows architects the world over and has worked with many of them. He could draw on his experiences in a lively way and the result was teaching of a very stimulating sort, to which our students responded with eagerness.

Desiring to get the reaction of one engaged in actual full-time teaching, I discussed this with Professor Donaldson Koons, head of the Department of Geology. In addition to being an excellent teacher, Professor Koons is constantly engaged in research and spends the summer vacation periods in projects related to his field. He surprised me by saying that he would like to spend a sabbatical year in some field, such as the oil industry, for example. He said that his teaching could be improved by some practical experience. Here was a frank acknowledgment from the Ivory Tower of what the Market Place had to offer to Education.

I realize that the teaching problems of the liberal arts colleges are quite different from those under consideration here today, which apply to the teaching of a clinical specialty at both the undergraduate and graduate levels. I realize that rarely has the physician-teacher had formal training in pedagogy. He is more apt to have served an apprenticeship under an older professor, whom he admired and now tries to emulate. Or, perhaps, he may have been critical of his chief, in which case he now assiduously endeavors to do things differently, avoiding what he considers the mistakes of his predecessor. He may be what is termed "a natural," in which case the quality of teaching will be satisfactory, modified only by the particular field of instruction and the experience of the teacher in that field.

Undoubtedly, certain subjects, particularly in the basic sciences, have been and will be taught, and taught better, by the full-time teacher. I recognize that practically all of the men now doing or contemplating full-time teaching in the clinical subjects have had adequate experience in actual practice and should be immune, for some time at least, to certain of the sometimes undesirable influences of the Ivory Tower.

But what of the future? Will a trend toward full-time teaching impel young men, in days to come, to enter the field without the practical experience enjoyed by our older men? Will they typify the Ivory Tower of the proverbial professor, who became a professor to avoid the problems of actualities? Will lack of contact with the Market Place deprive their instruction of something needed in actual practice, the art of dealing with patients as individuals, utilizing that understanding and sympathy which may contribute so much to the patients' welfare? I don't know. But I recall my discussion with our Professor of Geology, who felt the need of at least one year in seven away from the Ivory Tower and in contact with the actualities related to his particular field.

I assume that we are concerned primarily with the quality of instruction to be offered, that it is a question of which type of instruction is better for the student, which type will give him the best preparation for his future career.

Here, assuming that both types of teaching are well and conscientiously done, perhaps a judicious admixture will provide the best results.

If we are considering the type of instruction program which is better for the teacher, who in this case is a physician, I can see great advantages economically in a full-time position. With a satisfactory salary, sufficient to allow one to live comfortably and to support and bring up a family, with no overhead expenses and freedom from the annoyances of financial transactions with patients, with a more orderly life, and with retirement plans which are tax free, such a person has distinct advantages today over the self-employed. But there is one important qualification; these advantages accrue to the physician-teacher only if such a position carries tenure, and if one is not at the mercy of a Board of Trustees or some political body. And while the retirement age may look attractive to one in his forties, when the enforced separation does come, it may impose adjustments with which one is not prepared to cope. I could give you many examples of this. Few of us would choose to be put upon the shelf, and opportunities for retired professors are neither too abundant nor always attractive. And it is not easy for one to build up a private, or even a consultative, practice at 65. One may have financial security, but enforced idleness may cause unhappiness.

Of course this applies not alone to teaching. There is a perceptible trend toward full-time salaried hospital-staff positions, which may portend the Medicine of the Future. Group practice may provide, in many instances, better and more economical patient-care than the solo type, and it has many advantages to the practitioner. But again one must qualify this, for much depends upon the philosophy and idealism underlying such plans and the continuance of that idealism. Recently three excellent men have joined our staff, two from such positions in this country and one who describes himself as a refugee from the British system. All were disillusioned and dissatisfied with the regimentation and mechanization which made these plans almost devoid of that personal contact with individual patients which is so important. This would indicate the danger of generalizing too much in trying to assay these changes that may affect us all in the practice of our profession.

If I were to attempt to summarize these rather disjointed remarks, I would say:

1. It is useless to compare full-time and part-time teaching unless it is assumed that in either case the teacher is adequately prepared and the subject well presented. Teaching, to be adequate, demands sound knowledge of the subject, interest in imparting that knowledge, and ability to do so effectively; this obtains whether the teaching is full-time or part-time.

2. Certain subjects, such as the basic sciences, generally are better taught by the full-time instructor.

3. Part-time teaching has much to offer in the clinical fields. If teaching in the clinical fields is done on the full-time basis, past and continued experience in actual practice is essential if the teaching is to have a practical value.

4. The full-time position may offer distinct advantages to the physician, provided the problems of tenure and retirement are satisfactorily met.

5. And finally, realizing the difficulties and hazards in generalization, I find myself like President Bixler "with feet firmly planted on both sides of the fence, answer[ing] with a courageous and resounding 'yes' and 'no.'" Both the Ivory Tower and the Market Place are necessary; they should not compete but should supplement one another.

A TEACHING DAY IN OTOLARYNGOLOGY

ALFRED W. DOUST, M.D.
SYRACUSE, NEW YORK

FOR the past few years at the State University of New York, Upstate Medical Center, we have held a rather informal meeting which has been termed "A Teaching Day in Otolaryngology." The characteristics of this session which make it worthy of comment may at first seem obscure. However, it is rather different in several ways from the usual medical meetings, as will be seen in the ensuing discussion. In the average medical teaching institution, the instructional program in a specialty group can be outlined somewhat as follows:

1. Medical Student Training
2. Residency Program
3. Postgraduate Instruction

In the student-teaching program at Syracuse, in the sophomore year we provide twelve hours of basic lectures in otolaryngology. In the junior year the students have approximately fifty hours of junior clerkship instruction.

The residency program, at the present time, requires three years. It is anticipated that the first year of such a program will provide basic science training. The second year will include office practice and minor ear, nose, and throat surgery, as well as work in the hearing and speech clinic. Thus, the third year will be available for work with radical neck dissections and oral surgery, endoscopy, and the like.

Chairman, Department of Otolaryngology, State University of New York, Upstate Medical Center, Syracuse, N. Y.

The so-called postgraduate teaching for faculty members in actuality consumes a great many more man hours than is at first realized. Members of the department are called upon to provide programs in some of the following teaching situations:

A. General
   1. Hospital Staff Meeting
   2. Alumni Day
   3. County Society Meetings
   4. State Society Meetings
   5. General Practice Groups

B. Special
   1. Staff Meetings (E.N.T.)
   2. Teaching-Day Programs
   3. Local Specialty Society Meetings
   4. National Society Meetings

It is the Postgraduate Review and Clinic, described in the outline as the Teaching-Day Program, which is the subject under discussion. There are a number of teaching programs in otolaryngology provided each year in various parts of the country. These take the forms of reviews of diagnosis and therapy, detailed study courses on a particular phase or subject, or a complete review of current trends in otolaryngology; some even provide a happy combination of business and pleasure. All of these meetings are important and fill a particular need in the specialty training program.

However, according to a report by Dr. Douglas Vollan of Chicago, entitled "The Physician as a Lifelong Student," which appeared in the March 12, 1955, issue of the *Journal of the*

American Medical Association, there are certain obstacles to postgraduate attendance at meetings. The following deterrents, or excuses, are listed:

1. No one to care for patients while away
2. Courses given at unsuitable times
3. Costs involved
4. Multiplicity of other meetings
5. Subject matter does not meet the needs
6. Lack of courses in the physician's area
7. Previous unsatisfactory experience with poor courses
8. Lack of information on courses
9. Other [such as sickness, semiretirement, family responsibilities]

With this report as a guide, it was interesting for us to study our own teaching-day program.

In the first place, our program is limited to one day. Thus, the physicians attending are away from their practice for a relatively short time. The notices of the meetings are sent to the men in the Central New York area; hence, most men are within a few hours of their homes or offices, and there is no great traveling expense involved. Care is taken in scheduling the meeting so that there is no conflict with other specialty groups at the same time. An attempt is made to keep the subject matter scientific, and yet practical, so that it will be really worth while. Discussion from the floor is encouraged.

The subjects for discussion are chosen by the members of the department, and the method of presentation is left to the discretion of the individual. In 1954 the following subjects were presented:

Barosinusitis in Jet Pilots
Surgical Management of Benign Tumors of the Parotid
Malignancies of the Face
Visualization of the Esophageal Voice (Motion Picture)
Problems in Epistaxis
Acute Thyroiditis
X-Ray Symposium
Obstinate Nasal and Sinus Problems
Pediatric Laryngeal Problems
Radical Neck Dissection with Total Laryngectomy (Motion Picture)
Ménière's Disease

It has been found that an x-ray symposium, by a competent radiologist, is of great interest to the men attending a one-day program of this type. The roentgenograms are posted on a view box during the morning session and may be viewed by the attending physicians before the afternoon papers begin. At that time, the radiologist reviews each roentgenogram, pointing out the pathologic changes and the resultant diagnosis or treatment, so that the guests can compare their own findings with the accurate radiologic diagnosis.

Dr. Julius Lempert, as guest speaker, presented a paper on "Ménière's Disease" at the afternoon session, and participated in a panel discussion on "Hearing Problems" at the evening meeting. The evening sessions are held jointly with the Central New York Eye, Ear, Nose, and Throat Society, and are usually preceded by cocktails and an early dinner so that the men, if they have two or three hours to drive, will have an opportunity to get home before too late in the evening.

When there are as many programs and meetings as there are today, one may well ask, "Why should one bother with the teaching-day program?" However, we feel that it is justified. It is a teaching program on a relatively local level, and it brings together, for a day of study, the specialists in the Central New York area. Thus, with the relatively small local groups, discussion is encouraged, and the meeting becomes somewhat of an "audience participation" program.

However, perhaps the greatest value of a program of this kind is to the men who participate in it. In the preparation of papers, they develop habits of critical

reading of the literature in an attempt to associate their own experiences with those of others. They are provided with opportunity and stimulation for the writing of scientific papers; an opportunity not only to learn the techniques, but also to experiment with various methods of presentation, such as use of audiovisual aids. They have repeated stimulation to improve the quality of the program and raise the standards of the meeting. It serves as a sounding board for any departmental research project. In the long run, it makes each participant a better teacher of otolaryngology at the student and resident level.

This, in itself, is not a pretentious program, and it is, admittedly, not the last word in postgraduate teaching-day programs. We hope to be able to improve on it in the future. However, we do feel that it is a step in the right direction, and we are grateful that it has been so well received in the past.

In Memoriam

R. Winfield Baeseman.....Allenhurst, New Jersey
February 1, 1956

James Leslie Bryan.....Nashville, Tennessee
December 20, 1955

Justin Martin Donegan.....Chicago, Illinois
1956

Joseph Stanton Hory.....New York, New York
January 1, 1956

Martin John Joynt.....Le Mars, Iowa
December 7, 1955

Edward Daniel King.....North Hollywood, California
January 15, 1956

SECTION ON INSTRUCTION

SIXTY-FIRST ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

October 14-19, 1956

PALMER HOUSE

Chicago, Illinois

DEAN M. LIERLE, M.D.
Secretary for Instruction — Otolaryngology and Maxillofacial Surgery

A. D. RUEDEMANN, M.D.
Secretary for Instruction — Ophthalmology

This Section presents for 1956:

Otolaryngology: 124 Individual Courses; 21 Continuous Courses and Panel Discussions. The faculty is comprised of 148 instructors and the total number of instruction hours is 239.

Ophthalmology: 152 Individual Courses; 47 Continuous Courses. The faculty is comprised of 238 instructors, and the hours of instruction total 403.

General Instructions

Only members who have paid their 1956 *dues may order instruction tickets in advance of the meeting.* Members should order tickets only for their own use. Candidates for fellowship in the Academy are not privileged to reserve tickets in advance. After the session opens, no distinction between members, candidates and guests will be made in selling tickets.

Each period (1 hour) of instruction costs $2.00. *Orders unaccompanied by properly executed checks will not be filled.* Checks should be made payable to W. L. Benedict, M.D.

In case of inability to attend the meeting after order has been filled, a refund will be granted if requested prior to October 12.

If courses requested are not available and it is impossible to substitute, a refund will be granted. Refunds will not be sent by mail. A blue refund card will be placed in the Advance Registration Envelope which is received at the time of registration. This should be presented at the Instruction Desk for payment.

All orders for tickets will be filled according to postmark on envelope containing check. Telegrams will not be honored. Orders will not be accepted for presale after October 4. To ensure acceptance they should be mailed by October 1 to William L. Benedict, M.D., 100 First Avenue Building, Rochester, Minnesota.

Ordering Instruction Tickets

An *individual* course is complete in one (1) period. Most individual courses are repeated on two different days, allowing the subscriber to choose the day on which he wishes to attend.

A *continuous* course runs two (2) or more periods as indicated. It is not possible to purchase a ticket to only *part* of a continuous course.

At the end of this section is printed a colored sheet to be used when ordering tickets in advance. Specify preferences on this sheet and mail to the executive office. Careful attention to instructions will ensure the correct filling of your requests. ***Since number of tickets for each course is limited, be sure to list second and third choices for each period in case first choice is already sold out. In every case, effort will be made to furnish first choices.***

If you are requesting registration in the continuous courses, please specify preferences for individual courses as substitutes in order to avoid disappointment should the continuous courses which you select be sold out when your order is received.

Acknowledgment of Advance Order

As soon as an advance order is filled, a postcard, listing the courses that have been reserved for him, will be mailed to the subscriber. Please do not ask to change courses after your order has been filled. The postcard is merely an assurance that your order has been filled; it is not necessary for registration at the Academy meeting.

Claiming Instruction Tickets

No tickets will be sent through the mails. Members who have ordered instruction course tickets will register at the *Advance Order Section* of the Registration Desk during the week of the Convention to secure registration badge, tickets, and all convention material.

Tickets will be on sale during the meeting at the Instruction Desk in the Registration Foyer.

KEY TO DESIGNATION OF PERIODS

The periods will be designated with the following key: Select tickets for — Otolaryngology, forenoons, periods 1-2-3 — Ophthalmology, afternoons, periods 4-5-6

Day	(M)onday	(T)uesday	(W)ednesday	(Th)ursday
Period a.m.		1 2 3	1 2 3	1 2 3
Period p.m.	4 5 6	4 5 6	4 5 6	4 5 6

M-4	2:00 p.m. to 3:00 p.m.	W-4	2:00 p.m. to 3:00 p.m.
M-5	3:15 p.m. to 4:15 p.m.	W-5	3:15 p.m. to 4:15 p.m.
M-6	4:30 p.m. to 5:30 p.m.	W-6	4:30 p.m. to 5:30 p.m.
T-1	9:00 a.m. to 10:00 a.m.	Th-1	9:00 a.m. to 10:00 a.m.
T-2	10:15 a.m. to 11:15 a.m.	Th-2	10:15 a.m. to 11:15 a.m.
T-3	11:30 a.m. to 12:30 p.m.	Th-3	11:30 a.m. to 12:30 p.m.
T-4	2:00 p.m. to 3:00 p.m.	Th-4	2:00 p.m. to 3:00 p.m.
T-5	3:15 p.m. to 4:15 p.m.	Th-5	3:15 p.m. to 4:15 p.m.
T-6	4:30 p.m. to 5:30 p.m.	Th-6	4:30 p.m. to 5:30 p.m.
W-1	9:00 a.m. to 10:00 a.m.		
W-2	10:15 a.m. to 11:15 a.m.		
W-3	11:30 a.m. to 12:30 p.m.		

(Familiarity with this key will be helpful and will avoid confusion)

1956

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE 1

Room 731 Periods M-4, T-4, W-4

FRANCIS ADLER, M.D.
Philadelphia

Physiology of Vision

A three-period course—$6.00

This is an elementary course designed to cover our present knowledge of the transformation of light energy into the message sent to the brain. The material is divided into three parts. In part one, the energy spectrum is described and that portion capable of initiating vision in human beings and phototropic responses in animals is analyzed in terms of wave mechanics and energy content.

Part two deals with the transmission of light energy through the ocular media and its selective absorption by visual pigments. The known facts about the visual pigments of the human eye are detailed and the cycle of their breakdown by light and resynthesis in the retina is described, following the recent work of Wald and his co-workers.

Part three deals with the transformation of the energy released from the visual pigments by light into changes in the electrical potential as recorded by electroretinography. The further activation of the optic nerve fibers is then described, and the character of the message the optic nerve relays to the brain is detailed for various types of stimuli, in other words, how the retina signals changes in light intensity, colors, and dark adaptation.

The course is designed to meet the need for basic knowledge in visual physiology and will serve as an introduction to recent developments in electroretinography. It is not recommended, therefore, for those who wish practical applications.

COURSE 2

Room 738 Periods M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5

JAMES H. ALLEN, M.D., et al.

Bacteriology and Infectious Diseases of the Eye

An eight-period course—$16.00

The first hour of the course will be devoted to bacteriology and methods of etiologic diagnosis of infectious diseases. Six hours will be devoted to the clinical manifestations and differential diagnosis of infectious and allergic diseases of the eye, and one hour will be devoted to a general summary of the therapy of infectious diseases.

M-4—Bacteriology
James H. Allen, M.D.
New Orleans

M-5—Infections of the Lids and Lacrimal Apparatus
Hugh Ormsby, M.D.
Toronto, Ont., Canada
BY INVITATION

T-4—Bacterial Infections of the Conjunctiva
Isadore Givner, M.D.
New York

T-5—Allergic Diseases of the Lids, Conjunctiva, and Cornea
Frederick H. Theodore, M.D.
New York

W-4—Infectious Diseases of the Cornea
Gustav Bahn, M.D.
New Orleans

W-5—Virus Infections of the Lids and Conjunctiva
Samuel J. Kimura, M.D.
Berkeley, Calif.

Th-4—Infections of the Orbit and Globe (to include surgical infections)
Henry Allen, M.D.
Boston

Th-5—Therapy of Infectious Diseases
Alson E. Braley, M.D.
Iowa City, Iowa

COURSE 3

Room 721 Periods M-5, M-6

ELMER J. BALLINTINE, M.D.
LORAND V. JOHNSON, M.D.
Cleveland

Clinical Aqueous Tonography

A two-period course—$4.00

The value of tonography as a practical clinical office procedure in the management of glaucoma has been established. The clinical procedure and the more common sources of errors will be demonstrated in a motion picture and discussed in sufficient detail that the observers will be able to perform the test or instruct their technicians in the procedure.

Most of the time will be spent in interpretation and discussion of tonographic data obtained in the following clinical situations:

1. Early diagnosis of glaucoma and detection of "pre-glaucoma"
2. Refinement of provocative tests
3. "Low tension glaucoma" as a result of
   (a) decreased scleral rigidity
   (b) cavernous atrophy of the nerve
   (c) "arrested" glaucoma
4. Anticipation of failure of medical therapy before field loss occurs
5. Anticipation of failure of previously successful antiglaucoma surgery

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COURSE 4

Room 732 Periods M-4, M-5

BERNARD BECKER, M.D.
St. Louis
and
EVERETT KINSEY, Ph.D.
Detroit
BY INVITATION

Studies on Aqueous Flow

A two-period course—$4.00

COURSE 5

Room 736 Periods M-4, T-4, W-4

ARTHUR J. BEDELL, M.D.
Albany

Medical Ophthalmoscopy

A three-period course—$6.00

A review of the common and rare fundus lesions will be given, illustrated by more than 600 kodachrome photographs. Hypertension, diabetes, nephritis, tuberculosis, syphilis, the blood dyscrasias, increased orbital and intracranial pressure as evidenced by papilledema, optic neuritis of various types, and the optic atrophies will be presented and discussed.

COURSE 6

Room 744 Periods M-4, M-5

RAYNOLD N. BERKE, M.D.
Hackensack, N. J.

Surgery of Oblique Muscles

A two-period course—$4.00

About 50 per cent of squint cases have a vertical component, and unless the hypertropia is corrected, single binocular vision is seldom achieved. Operations on the oblique muscles alone will reduce, or entirely correct, the vertical component in the majority of cases. Such operations are not difficult, do not produce changes in the width of the fissure, and generally do not result in torsional difficulties.

Slides and motion pictures will be shown illustrating the diagnosis, surgical treatment and the postoperative results of oblique muscle surgery.

COURSE 7

Room 724 Periods M-4, T-4
W-4, Th-4

MILTON L. BERLINER, M.D.
New York

Slit Lamp Microscopy:
Advanced Techniques

A four-period course—$8.00

This course will provide a review of the different methods of illumination and show their practical application in the observation of normal and pathologic findings including scatter, direct focal illumination, retroillumination, and specular reflection. A rapid method for the systematic examination of the eye by these methods is explained. Appliances and techniques for the biomicroscopic examination of the deeper vitreous and fundus will be demonstrated and discussed. The importance of examination of preoperative and postoperative cases by these

methods will be stressed. Numerous lantern slides will be used to illustrate special clinical entities. Newer conceptions of lens changes (cataracts) and vitreous alterations will be presented.

COURSE 8

Room 715 Periods T-4, T-5

PAUL BOEDER, Ph.D.
Southbridge, Mass.

Practical Optics

A two-period course—$4.00

The optical properties and practical aspects of single vision and contact lenses as well as all types of multifocal lenses will be discussed; in particular, their defects and prismatic effects, such as object displacement, image jump, vertical imbalances, and decentration. This will be followed by a discussion of cataract and telescopic lenses, and finally, by a review of the optical principles of retinoscopy, and direct and indirect ophthalmoscopy.

COURSE 9

Room 721 Periods T-5, T-6

ROBERT J. BROCKHURST, M.D.
Boston
BY INVITATION

Indirect Ophthalmoscopy

A two-period course—$4.00

Direct and indirect ophthalmoscopy will be compared, and the technique of indirect ophthalmoscopy described with the aid of a short motion picture in color.

The advantages of indirect ophthalmoscopy in the study of the extreme fundus periphery is demonstrated with slides of fundus paintings of such conditions as retinal detachment, retinoschisis, retinal cysts, neoplasms, uveitis, and intraocular foreign bodies.

This method of ophthalmoscopy is discussed in relation to the surgical treatment of retinal detachment, certain types of small intraocular tumors, and intraocular foreign bodies.

COURSE 10

Room 795 Periods M-4, M-5, T-4 T-5, W-4, W-5, Th-4, Th-5

HAROLD W. BROWN, M.D., et al.

Eye Muscles

An eight-period course—$16.00

M-4 & 5—Physiology and Pathology of the Ocular Muscles

Harold W. Brown, M.D.
New York

The physiologic action of the individual muscles, conjugate and disjunctive movements (convergence, divergence) will be discussed and illustrated. From these normal physiologic acts, the pathologic variations will be developed and classified. Various methods of diagnosis, measurements of deviation and the surgical and nonsurgical correction of these deviations will be presented.

T-4 & 5—Congenital Anomalies
Rudolf Aebli, M.D.
New York

The subject matter will cover the more usual congenital anomalies such as retraction syndrome and its variations, strabismus fixus, Marcus Gunn jaw winking syndrome, paralyses of both elevators of one eye with true ptosis and pseudoptosis, and also congenital individual muscle anomalies. Differential diagnosis and treatment, if any, will be discussed.

W-4—Tests
Harold W. Brown, M.D.

Tests in common use will be briefly described and the relative merits discussed. Emphasis will be placed on the screen cover test and its modifications. A practical routine muscle test will be outlined and the technique of the various procedures will be described in detail.

W-5—Surgical Techniques in the Management of Motor Anomalies
William B. Clark, M.D.
New Orleans

A thorough understanding of the anatomy and physiology of the ocular muscles is essential before an effective technique in the surgical treatment of motor anomalies can be perfected. A discussion

of the dissection of tissues in layers, the preservation of Tenon's capsule covering the muscle, the severing of check and lateral ligaments, the use of suture materials for reattaching muscles to the sclera, and closure of the wounds will be discussed in detail.

Th-4 & 5—Surgery of the Extraocular Muscles

Harold W. Brown, M.D.
Rudolf Aebli, M.D.

The indications and contraindications for surgical correction of heterophoria and heterotropia will be discussed. Special emphasis will be placed on the methods used in selecting the proper muscle or muscles for operation and the amount of correction that can be expected from the different types of surgical procedures.

COURSE 11

Room 734 Periods T-4, T-5

COL. VICTOR A. BYRNES (MC)
Washington, D. C.

Ophthalmic Filters

A two-period course—$4.00

In prescribing sunglasses or tinted lenses the following factors should be considered:

a. In what kind of light will these filters be used?
b. What effects do these light wavelengths have on the eye if unfiltered?
c. What effects do the various filters have on the light distribution?
d. What is the effect on vision of the changes in the light reaching the eye?

These factors will be discussed. Other topics for discussion will include sunglasses of different shades and the advantages and disadvantages of each; tinted lenses for constant wear; types of tinted lenses advocated for night driving and their defects; tinted windshields and their transmission curves, uses and disadvantages; reflecting filters and their uses; relative merits of glass and plastic lenses; use of sunglasses with corrections for refractive errors; strength of corrections which can be ground in large-size sunglass lenses; polarizing lenses; shooting glasses; defects of clip-on lenses; filters for possible use in prevention of intraocular damage by atomic flash and other high intensity radiation.

COURSE 12

Room 716 Periods M-6, T-6, W-6

GRAHAM CLARK, M.D.
Englewood, N. J.

Retinal Detachment

A three-period course—$6.00

The following outline will be utilized:

I. Types of retinal detachments and their holes: causative mechanisms, surgical approach, and prognostic significance
II. Treatment of the simple detachment, with emphasis on the electrical principles involved in the use of diathermy
III. Treatment of complicated detachments, with discussion of the various procedures for shortening the sclera

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COURSE 13

Room 731 Periods M-5, M-6

WILLIAM B. CLARK, M.D.
New Orleans

Cataract Extraction: Selection and Preparation of a Patient

A two-period course—$4.00

It is not possible to set down other than rather general principles for the selection and preparation of patients for cataract extraction. Each patient with a cataract presents an individual problem to the ophthalmologist as to temperament, state of general health, need for visual improvement, and psychological approach towards his or her difficulty. Therefore, the keynote of this course will be the individualization of the treatment of patients with cataracts, with the speaker outlining his experiences with the variations in temperament, physical stamina,

and disorientation, and his suggestions as to the manner of handling individual cases.

COURSE 14

Room 731 Periods T-5, T-6

WILLIAM B. CLARK, M.D.
New Orleans

Surgery of Ocular Muscles

A two-period course—$4.00

A review of the surgical anatomy and the physiology of the ocular muscles will be presented. Effort will be made to rationalize the use of certain procedures with the anatomy and physiology of the eye muscles. The selection of the type of procedure to be followed for certain anomalies will be discussed. The preliminary preparation of the patient for surgery, the choice of the anesthetic agent, and the postoperative care of the patient will be considered.

COURSE 15

Room 782 Periods M-4, M-5, T-4, T-5

COURSE 16

Room 782 Periods W-4, W-5, Th-4, Th-5

JACK C. COPELAND
Chicago
BY INVITATION

Streak Retinoscopy

A four-period course—$8.00

This four-hour course is being presented twice, as Course 15 on Monday and Tuesday and as Course 16 on Wednesday and Thursday. **Please select course number according to days on which you wish to attend.**

The following outline describes the steps of the demonstration:

1. Determining the neutral point
2. Revealing low astigmatic errors
3. Locating the zone of the astigmatic band
4. Determining the power of the cylinder
5. Estimating the type and degree of error without lenses
6. Refining axis position by "Guide Angle" technique
7. Plus cylinder procedure

COURSE 17

Room 710 Periods M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4, Th-5, Th-6

FRANK D. COSTENBADER, M.D., et al.

Comitant Strabismus: Physiology and Management

A twelve-period course—$24.00

This course is designed to teach the why of strabismus, as well as the what to do for strabismus. The "rule of reason" is emphasized rather than the "rule of thumb."

The order of listing of the lectures makes evident our intent to show (1) how eyes may align and see together, (2) what happens when they can no longer see together, and finally, (3) what can be done to restore them to as nearly normal function as possible.

M-4—Binocular Positions and Movements
Marshall M. Parks, M.D.
Washington, D. C.

Movements eyes make and why; positions they assume and why; the reflexes controlling these movements and positions.

M-5—Binocular Vision
Hermann M. Burian, M.D.
Iowa City, Iowa

Physiologic basis of normal binocular vision; conditions necessary for its achievement.

M-6—Dissociation and Binocular Adaptations
Frank D. Costenbader, M.D.
Washington, D. C.

What factors interrupt binocular vision; the sensory and motor adaptations to this interruption.

T-4—Sensory Adaptations
Hermann M. Burian, M.D.

Suppression, amblyopia ex anopsia, anomalous correspondence: their essence and treatment.

T-5—Accommodation-Convergence
Marshall M. Parks, M.D.

Methods of determination and norms of accommodation and convergence. The relationship of accommodation and con-

vergence; the method by which this relationship is measured, and norms for this relationship.

T-6—Diagnostic Principles
Dan G. Albert, M.D.
Washington, D. C.
BY INVITATION

Principles underlying the tests to determine status of motor and sensory cooperation of the eyes. The essence of the various tests.

W-4—Diagnostic Techniques
Dan G. Albert, M.D.

How the tests for motor and sensory cooperation of the eyes should be performed and how variations in technique affect the result obtained.

W-5—Therapeutic Principles and Methods
Frank D. Costenbader, M.D.

The methods of achieving the goals of (1) good vision, (2) good alignment, and (3) good binocular vision.

W-6 & Th-4—Exotropia
Frank D. Costenbader, M.D.

The recognition and management of (1) convergence insufficiency, (2) intermittent exotropia, and (3) constant exotropia.

Th-5 & 6—Esotropia
Marshall M. Parks, M.D.

The recognition and management of (1) intermittent and (2) constant esotropia.

Throughout the course, diagnostic and therapeutic techniques will be demonstrated and discussed, and illustrative cases will be cited.

COURSE 18

Room 722 Periods T-6, W-6, Th-6

GEORGE P. GUIBOR, M.D.
Chicago

Orthoptics: Office and Home Techniques

A three-period course—$6.00

The first hour will be used to discuss those motor defects which can be improved by nonsurgical intervention. Among cases to be presented will be those of infants with esotropia, insufficiencies of fixation ability, pseudopalsy, head tilting, nystagmus, spasmus fixus, and spasmus nutans. Treatment of these patients is often deferred until contractures result, whereas early treatment prevents such motor defects and develops visual acuity.

During the second hour, treatment of patients with eccentric fixation, paralytic deviations (especially those with abducens palsy and those with accommodative esotropia) and amblyopia will be discussed. Children who have difficulty in reading are often brought to the oculist for his advice. Practical office and home treatment to overcome these difficulties will be presented.

In the third hour the course will include diagnosis in cases of headache, aching of the eyes, convergence difficulties, ciliary disturbances, and oscillopsia in adults. Treatment to overcome these conditions will be suggested. Some refractive problems associated with this group will be discussed. Case reports by members of the class will be reviewed.

COURSE 19

Room 724 Periods M-5, T-5, W-5

JOHN W. HENDERSON, M.D.
Ann Arbor, Mich.

Neuro-ophthalmology

A three-period course—$6.00

Anatomy of the visual pathway as applied to case studies will be presented during the first half of the course. This will be followed by a review of the oculomotor pathways, and discussion of the effects of lesions at various neurologic levels of control. Certain cases of impairment of motility will be demonstrated by means of motion pictures. During the final period a review of the major neurologic syndromes which include ocular abnormalities will be presented.

COURSE 20

Room 731 Periods W-5, W-6

ROBERT W. HOLLENHORST, M.D.
Rochester, Minn.

Differential Diagnosis in the Arterial Diseases as They Affect the Eye

A two-period course—$4.00

This course is divided into two periods. In the first period, vascular hypertension and its manifestations in the retina are

discussed and correlated with clinicopathologic findings illustrated by kodachrome photographs. In the second period, retinal arterial thrombosis and embolism, affections and manifestations of diseases of the internal carotid artery system, periarteritis nodosa, cranial arteritis, and other arterial and arteriolar involvement will be similarly discussed and illustrated.

COURSE 21

Room 736 Periods M-5, M-6, T-5, T-6, W-5, W-6, Th-5, Th-6

WENDELL L. HUGHES, M.D., et al.

Ophthalmic Plastic Surgery: Fundamental Course

An eight-period course—$16.00

M-5 & 6—Basic Principles
Wendell L. Hughes, M.D.
Hempstead, N. Y.

T-5 & 6—Lacerations of the Eyelids
Deane C. Hartman, M.D.
Los Angeles

Repair involving the free lid margin and the eyelid away from the lid margin. Loss of lid tissue and corneal protection. Trauma of deeper structures. Special procedures for inner and outer canthal repair. Techniques directed toward restoration of canaliculi function. Complications following lid lacerations.

W-5—Ectropion; Entropion; Trichiasis
Joseph C. Hill, M.D.
Toronto, Ont., Canada

Principles of treatment applicable to moderate degrees of ectropion and entropion and trichiasis, which although simple to perform are found to give the least complications.

Kodachrome slides and a short motion picture will illustrate the discussion.

W-6—Ptosis; Excess Skin in Lids (Baggy Lids); Exophthalmos
Charles E. Iliff, M.D.
Baltimore

Th-5—Enucleation; Evisceration; Lacrimal Apparatus
M. Noel Stow, M.D.
Washington, D. C.

Th-6—Panel Discussion

COURSE 22

Room 722 Periods M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5

WILLIS S. KNIGHTON, M.D., et al.

Highlights in Glaucoma

An eight-period course—$16.00

A short course in the fundamentals of glaucoma as understood at the present time. Theoretical concepts will be given a minimum of attention so as to allow more time for the discussion of the practical phases of detection and management.

M-4—Minimum Requirements for the Detection of Early Glaucoma
Willis S. Knighton, M.D.
New York

M-5—Chronic Simple Glaucoma
Edwin B. Dunphy, M.D.
Boston

T-4—Narrow Angle Glaucoma
Paul A. Chandler, M.D.
Boston

T-5—Secondary Glaucoma
A. Gerard DeVoe, M.D.
New York

W-4—Pathology
Joseph A. C. Wadsworth, M.D.
New York

W-5—Medication
P. Robb McDonald, M.D.
Philadelphia

Th-4—Surgery
Harold G. Scheie, M.D.
Philadelphia

Th-5—Round Table Discussion

COURSE 23

Room 796 Periods M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5

JOHN M. McLEAN, M.D.
New York

CHARLES L. SCHEPENS, M.D.
Boston
BY INVITATION

EDWARD W. D. NORTON, M.D.
New York

ICHIRO OKAMURA, M.D.
Boston
BY INVITATION

Retinal Detachment

An eight-period course—$16.00

The management of detached retina will be considered from the practical standpoint. Principles and objectives of treatment will be outlined, and the means of obtaining them which have been used in the past will be reviewed. Various methods in current use will be discussed critically. Diagnosis and methods of examination, including indirect stereoscopic ophthalmoscopy, scleral depression, and biomicroscopy of the vitreous will be covered. Uses of various electric currents and other modalities will be compared. The indications and uses of several surgical methods will be outlined and illustrated in some detail. Preoperative and postoperative management will be covered, and prognostic factors and results analyzed.

COURSE 24

Room 727 Periods T-4, T-5

KENNETH N. OGLE, Ph.D.
Rochester, Minn.
BY INVITATION

Essential Aspects of Binocular Vision

A two-period course—$4.00

These lectures will present a well-rounded review not only of the basic physiology and optics involved in normal binocular vision but also of the problems presented in this field. To be considered are the sensory and motor aspects of the organization of the two eyes, the basic facts of fusion, fusional movements, phorias, fixation disparity, prism vergences, stereopsis, and elements of binocular spatial localization.

COURSE 25

Room 728 Periods M-4, M-5

DONALD H. O'ROURKE, M.D.
Denver

Cross Cylinders and Astigmatic Dials

A two-period course—$4.00

This course is a practical demonstration of the use of the Jackson cross cylinder and the Lancaster astigmatic dials. Both of these methods lend themselves to the subjective examination of the eye in a simple and practical manner.

Each method may be utilized satisfactorily either with or without the use of a cycloplegic. Either method may be used nicely as a check on the other, and at the time of refraction both methods are used interchangeably.

Theory will be discussed only as necessary to emphasize the practical demonstration.

COURSE 26

Room 715 Periods M-4, M-5

RAYMOND L. PFEIFFER, M.D.
IRA S. JONES, M.D.
New York

Roentgenography of the Eye and Orbit

A two-period course—$4.00

The scope of diagnostic roentgenology has been so broadened in recent years as to make the procedure indispensable in the practice of ophthalmology. In this course its various applications will be presented, illustrated and evaluated. Pathologic changes in the orbit characteristic of various diseases of the eye will be considered. Basic principles will be discussed.

COURSE 27

Room 732 Periods M-6, T-6, W-6

DOHRMANN K. PISCHEL, M.D.
San Francisco

JOSEPH A. C. WADSWORTH, M.D.
New York

Retinal Detachment

A three-period course—$6.00

The pathologic anatomy of retinal detachment will be presented and the relation of these factors to the clinical de-

velopment of the disease will be shown. Aids in diagnosis and differential diagnosis will be described. Surgical procedures, including diathermy and the various types of scleral resections, will be discussed.

COURSE 28

Room 733 Periods M-4, M-5, T-4, T-5, W-4, W-5

JAMES J. REGAN, M.D.
CHARLES D. J. REGAN, M.D.
Boston

Refraction: Its Practical Aspects and Aids in the Difficult Problems

A six-period course—$12.00

This course will show how refractive errors can be measured with the greatest precision. Opening with a review of optical principles, the course will consist chiefly of practical clinical demonstrations, using members of the class as patients. Objective and subjective approved techniques will be shown with emphasis on the comparative value of each and in various combinations, with and without cycloplegics, in obtaining results satisfactory to both examiner and patient.

Simple methods for measuring heterophoria (extraocular muscle imbalance) and practical suggestions for handling such cases will be discussed as an important part of refraction. Tests for heterophoria for distance are a common practice but tests for near are seldom done. The importance of such a test for near and a simple accurate method for its conduct will be demonstrated.

COURSE 29

Room 744 Periods W-4, W-5

DANIEL M. ROLETT, M.D.
New York

Gonioscopy: Practical Application

A two-period course—$4.00

This course will review in detail the instrumentation essential in gonioscopy.

It will consist of individual instruction in the manual use of the various gonioscopes in use at present: Goldmann's, Allen's, Colenbrander's and others. Their advantages and disadvantages will be discussed. The course will emphasize the normal anatomy of the angle, thereby arousing instantaneous awareness of pathologic conditions when encountered.

The use of the gonioscope in (a) all injuries of the eyes, whether perforating or contusive, (b) glaucoma, all types, preoperative and postoperative, (c) congenital anomalies, and (d) inflammatory conditions of the anterior segment of the eye will be emphasized.

COURSE 30

Room 716 Periods M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5

HUNTER H. ROMAINE, M.D., et al.

Ocular Motility

An eight-period course—$16.00

It is our desire to cover the subject, starting with the fundamentals and working through to surgical techniques and an evaluation of all methods of treatment.

M-4—Applied Anatomy and Physiology of the Ocular Muscles

Hunter H. Romaine, M.D.
New York

Anatomy and physiology of the ocular muscles will be presented, bringing out the relationship between the anatomy and physiology and the pathologic situations that result from discrepancies in the motor system.

M-5—Etiologic Factors in Muscular Imbalance

Abraham Schlossman, M.D.
New York

T-4—Evaluation of Tests in the Diagnosis of Motor Anomalies

Edward A. Dunlap, M.D.
New York

T-5—Orthoptic Routine and Therapy

Dorothy Parkhill Hedden
Chicago
BY INVITATION

Preoperative orthoptic routine will be outlined, and methods used when operative procedure is not contemplated will be discussed.

W-4—Choice of Surgical Procedure

Richard Troutman, M.D.
New York

W-5—Surgical Technique

Truman L. Boyes, M.D.
New York

An evaluation of the various surgical techniques will be made, including discussion of sutures and surgical materials.

Th-4—Surgical Complications and Secondary Surgery

Hunter H. Romaine, M.D.

Th-5—Home Training in Orthoptics

Hunter H. Romaine, M.D.
and
Anne Hughes
New York
BY INVITATION

COURSE 31

Room 728 Periods M-6, T-6, W-6

HUNTER H. ROMAINE, M.D.
New York

Difficult Problems in Refraction and Their Treatment

A three-period course—$6.00

This course will consist of a rapid review of the various methods used in refraction and their advantages and disadvantages. It will also include classification of myopia and hyperopia, with discussion of the refractive care of each; astigmatism and its significance; and presbyopia and its analysis. The treatment of aphakia, anisometropia, spasm of accommodation, and fatigue of accommodation will be taken up. The use of prisms will be discussed, and the indications and contraindications for the use of specialized lenses (aniseikonic, contact, corneal, lacri, telescopic, microscopic, moist-chamber and hemianopic) will be presented.

The significance of dominance and its relation to refraction will be discussed.

COURSE 32

Room 778 Periods T-6, W-4, Th-4

THEODORE E. SANDERS, M.D.
St. Louis

GLEN GIBSON, M.D.
Philadelphia

BERNARD BECKER, M.D.
St. Louis

Vascular Diseases

A three-period course—$6.00

A correlation of the clinical ophthalmoscopic appearance of the eye with the underlying pathologic anatomy will be presented in order to give a thorough understanding of the etiology and pathogenesis of vascular diseases. The three lectures will be closely integrated.

T-6—Theodore E. Sanders, M.D.

A review of the anatomy of the intraocular circulatory system and classification of intraocular diseases, with a discussion of the characteristic pathologic features of each type.

W-4—Glen Gibson, M.D.

A presentation of the ophthalmoscopic picture of the various disease entities as correlated with the pathologic anatomy.

Th-4—Bernard Becker, M.D.

A discussion of current theories regarding the pathogenesis of some of these conditions and suggestions for clinical management.

COURSE 33

Room 734 Periods M-5, M-6

ROBERT A. SCHIMEK, M.D.
Detroit

FRANKLYN BOUSQUET, M.D.
Savannah, Ga.

Gonioscopy and Aqueous Outflow Determinations

A two-period course—$4.00

1. Demonstration of Techniques
Human subjects will be utilized for demonstration of gonioscopy and tonography. Their aqueous outflow constants will be determined. Mem-

bers of the group may use each of the various gonioprisms with the slit lamp and the goniolens with the gonioscope on human subjects.

2. Clinical Applications
Landmarks of the normal and abnormal angles as they actually appear during gonioscopy will be shown by means of stereoscopic slides.

The theory and practical applications of tonography will be presented. Emphasis wil be placed on correlation of gonioscopic and tonographic findings in determining diagnosis, treatment, and prognosis of various types of glaucoma in a series of patients.

ALBERT E. SLOANE, M.D.
Boston

BERNARD C. GETTES, M.D.
Philadelphia

ABRAHAM POLLEN, M.D.
Boston

Refraction

The following three courses dealing with Refraction, Course 34, Course 35 and Course 36, will be under the direction of Albert E. Sloane, M.D. They may be purchased jointly or separately as your schedule permits.

COURSE 34

Room 740 Periods M-4, M-5

School Vision Testing: Program, Problems and Methods

Albert E. Sloane, M.D.

A two-period course—$4.00

This course will provide the ophthalmologist with background for this important phase of public health work. In recent years increasing emphasis is being placed on such programs throughout the country, and the eye doctor is more often asked to act either in an advisory capacity or in the actual setting up of such procedures. Various methods of testing will be demonstrated and their present relative merits discussed. Other important problems involved in such programs will be discussed.

COURSE 35

Room 740 Periods T-4, T-5

Telescopic Lenses and Other Subnormal Vision Aids

Albert E. Sloane, M.D

A two-period course—$4.00

In this course the ophthalmologist will be given an appreciation of the value and limitations of telescopic lenses and simple methods of testing their usefulness. Techniques for utilizing the various types of lenses now available will be demonstrated. Many other aids for increasing the size of the retinal image are available, easily fitted, and quite inexpensive. These will also be presented with relation to their clinical application.

COURSE 36

Room 740 Periods W-4, W-5

A two-period course—$4.00

A. Criteria for Prescription of Prisms in Ophthalmic Practice

Abraham Pollen, M.D.

A working formula for guidance in prescribing prisms will be presented. The standard textbook can only generalize regarding this phase of treatment, since all cases must be considered individually. Nevertheless, some system of guidance is desirable and helpful even though subject to error. Our classification of heterophorias will indicate in which cases prisms should be prescribed and how the strength of the prism may be determined.

B. Drugs Used in Refraction

Bernard C. Gettes, M.D.

The place of cycloplegia in refraction has always been a controversial subject. Its advantages and shortcomings will be presented with indications and contraindications for its use. The relative merits of the several cycloplegics and the best methods for their administration will be considered. Miotics will be discussed, and their effect in accommodative strabismus will be considered.

COURSE 37

Room 752 Periods M-5, M-6, T-5, T-6, W-5, W-6, Th-5, Th-6

BYRON C. SMITH, M.D., et al.

Ophthalmic Plastic Surgery: Advanced Course

An eight-period course—$16.00

The more advanced techniques, details and procedures for surgical repair of congenital, traumatic, cicatricial and neoplastic deformities of the orbital region will be considered in this course. Specific problems and typical deformities will be demonstrated and evaluated. This course is designed for those who have had a certain amount of experience and know the fundamentals of this type of surgery. Dr. Wendell Hughes (Course 21) will present a discussion of the fundamentals in ophthalmic plastic surgery. It is considered advisable to attend the preliminary course before registration for this course. Both courses will be repeated in 1957.

An hour at the termination of the course is reserved for submission of cases by the students. Photographic drawings and slides may be presented for this discussion by the panel.

M-5—Pterygium, Symblepharon, Congenital Orbital Defects

Sidney A. Fox, M.D.
New York

M-6—Congenital Anomalies of the Eyelids: Blepharophimosis, Symblepharon, Colobomas, Canthus Deformities

J. Gordon Cole, M.D.
New York

T-5—Lower Lid Reconstruction: Replacement of Soft Tissues by Composite Graft and Flap Techniques

Merrill J. Reeh, M.D.
Portland, Ore.

T-6—Ectropion: Various Types; Pathological Physiology; Analysis and Selection of Remedial Measures

Merrill J. Reeh, M.D.

W-5—Reconstruction of Upper Lid; Reconstruction of Both Lids; Reconstruction after Removal of Large Neoplasms

Byron C. Smith, M.D.
New York

W-6—Entropion, Trichiasis: Various Types and Methods of Management

Byron C. Smith, M.D.

Th-5—Evisceration; Enucleation; Exenteration; Orbital Tumors; Orbital Fractures

Edmund B. Spaeth, M.D.
Philadelphia

A discussion of basic principles in the treatment of these surgical conditions with special consideration of the postoperative plastic defects which too frequently become so severe as to assume the significance of primary conditions.

Th-6—Panel Discussion

COURSE 38

Room 743 Periods W-4, W-5

M. NOEL STOW, M.D.
Washington, D. C.

Diagnostic and Therapeutic Office Procedures

A two-period course—$4.00

The usual office routine for eye examination is sufficiently inclusive to call attention to significant pathologic changes. Exemplary cases will be presented which may serve as a guide to diagnosis when such examination fails to reveal the true nature of the condition.

The medical, surgical and traumatic ocular conditions which are amenable to office treatment will be presented. Surgical and therapeutic measures performed in the hospital will be omitted, but the office care of postoperative cases will be given consideration.

COURSE 39

Room 743 Periods M-4, M-5

EDWIN FORBES TAIT, M.D.
Norristown, Pa.

Heterophoria: Practical Methods in Diagnosis and Treatment

A two-period course—$4.00

Efficient single binocular vision, in cases where it is possible, is as much a requirement for visual comfort as a proper lens correction for ametropia. The

complications which are introduced into office refraction procedures by extraocular muscle imbalance form one of the major sources of difficulty in obtaining comfortable and efficient visual corrections.

Abnormalities in binocular vision are practically always the result of deficiencies in the stimulus-response systems which control vergence movements and accommodation; therefore, diagnostic and corrective procedures should be based upon a clear understanding of those reflexes.

Commonly used methods of classification of extraocular muscle abnormalities, such as the Duane-White system, are purely descriptive and are not very useful in arriving at rational methods of treatment. In this course, these descriptive systems are correlated with the stimulus-response concept in order to formulate a clinically useful diagnostic classification of heterophoria and effective methods of treatment when the reflexes are faulty.

With the aid of basic office refraction equipment, these simple and effective methods of diagnosis and treatment will be demonstrated on members of the group.

COURSE 40

Room 754 — Periods M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4, Th-5, Th-6

GEORGIANA D. THEOBALD, M.D., et al.

Histopathology

A twelve-period course—$24.00

The teaching will be by lecture, microprojection and microscope. It is recommended that the student review the normal histology of the eye before attending this course.

The Cornea

Frederick C. Blodi, M.D.
Iowa City, Iowa

The normal histology will be reviewed. The anatomical picture will be correlated with the slit lamp examination of the cornea. The problem of corneal transparency will be discussed from an anatomical, chemical and physical point of view.

The general pathology of the cornea will be taken up in the following order: corneal edema, vascularization, keratitis, wound healing, epithelial changes and changes in Descemet's membrane and on the posterior corneal surface.

The specific pathology will include a discussion of suppurative and nonsuppurative keratitis, senile changes, corneal degenerations, and pigmentations.

The Proper Method of Evaluation of Ocular Tissue

Frederick R. Carriker, M.D.
San Francisco

This presentation will be concerned with the methods of examining ocular pathological tissue. The discussion will include the gross appearance of the various types of eye specimens sent to the eye pathology laboratory. A motion picture will be used to emphasize various points in the discussion.

Pathogenesis of Some Intraocular Surgical Complications

Leonard Christensen, M.D.
Portland, Ore.

This presentation will be concerned with the pathogenesis of tissue alterations which result from complications of the more common intraocular surgical procedures. The discussion will include the factors which lead to failure in filtration operations for glaucoma, such postoperative complications as retinal detachment and epithelization of the anterior chamber, and the effects of vitreous loss during cataract extraction. Representative microscopic slides will be available for study.

Pathology of the Optic Nerve

Windsor S. Davies, M.D.
Detroit

A classification of the pathologic changes as observed in the optic nerve will be presented. Various lesions will be demonstrated by lantern slides. A correlation will be made between clinical and pathologic findings.

Tumors of the Orbit

Arnold W. Forrest, M.D.
White Plains, N. Y.

There will be a discussion of the pathologic characteristics of orbital tumors and the clinical conditions which result from them. The seven most common types, which comprise 75 per cent of primary orbital tumors, will be studied in detail. Sections will be provided for microscopic examination.

Pathology of the Lens

Michael J. Hogan, M.D.
San Francisco

The purpose of this lecture will be to present the normal histology of the lens and the etiology and pathogeny of cataractous changes. The histopathology will be described in detail, including changes in the capsule, lens epithelium, and lens fibers. Senile cataract in its various manifestations will be discussed from a clinical and pathologic standpoint. Cataracta complicata of the posterior and anterior types will be demonstrated. Diabetic and metabolic cataracts will be discussed.

Hypertensive, Nephritic, Diabetic and Arteriosclerotic Retinopathy

A. Ray Irvine, Jr., M.D.
Beverly Hills, Calif.

Celloidin sections of eyes showing the retinopathy typical of hypertension, nephritis, diabetes and arteriosclerosis will be presented for microscopic study. Where possible, the newer stains demonstrating mucoproteins and fixed polysaccharides will be used. The lecture will consist of an explanation of the slide material and a discussion of the pathologic physiology.

Tumors of the Uvea

John S. McGavic, M.D.
Bryn Mawr, Pa.

All of the tumors involving the uveal tract will be discussed and illustrated. Both primary and secondary tumors will be included. Most of the time will be devoted to benign and malignant melanomas, as they are the most common. Nevi, neurofibromas, hemangiomas, leiomyomas, xanthoendotheliomas, lymphomas and various metastatic tumors will be presented. Microscopic sections will be available for study as well as for projection.

Tumors of the Retina

Edith Parkhill, M.D.
Rochester, Minn.

BY INVITATION

The gross and microscopic pathology of retinoblastoma will be presented with the aid of lantern slides. Factors in etiology and prognosis will be considered; when the cases are classified according to certain factors in the history and microscopic findings, it is found that the survival rate in one group is almost 100 per cent.

Pathology of Glaucoma

Theodore E. Sanders, M.D.
St. Louis

The essential changes produced in the tissues of the eye by increased intraocular pressure will be presented. The various lesions causing secondary glaucoma will also be described. The mechanisms which may cause both primary and secondary glaucoma will be discussed.

Cells Found in Inflammatory Lesions

Georgiana D. Theobald, M.D.
Oak Park, Ill.

Cytology, pathology and sequelae of ocular inflammations will be discussed.

Granulomatous Infections of the Eye

Lorenz Zimmerman, M.D.
Washington, D. C.

BY INVITATION

Among the many different causes of "granulomatous inflammation" involving ocular tissues are infectious agents which may be demonstrated histologically within the eye. These include nematode larvae, Toxoplasma, tubercle bacilli, leprosy bacilli, Treponema, inclusion bodies, and fungi such as Blastomyces and Cryptococcus. None of these is demonstrated with ease since a prolonged search of serial sections is necessary in some cases and special staining techniques are required in others.

"Granulomatous inflammation" is a term preferred to "granulomatous uveitis" since in many of these infections the process is neither primarily nor predominantly uveal. Sympathetic ophthalmia is the only type of granulomatous inflammation that is a true uveitis.

COURSE 41

Rooms 788 & 789 — Periods M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6

HARVEY E. THORPE, M.D.
Pittsburgh

ROBERT J. MASTERS, M.D.
Indianapolis

ALEXANDER A. KRIEGER, M.D.
Pittsburgh

JOHN MELVIN MASTERS, M.D.
Indianapolis

SAMUEL N. KEY, JR., M.D.
Austin, Texas

FRED M. WILSON, M.D.
Carmel, Ind.

Slit Lamp Biomicroscopy: Fundamentals

A nine-period course—$18.00

This course deals with the important fundamentals of slit lamp microscopy. Much time will be given to making the registrants familiar with the manipulation of the newer instruments. Illustrated lectures which describe biomicroscopic studies of the normal and pathologic cornea, anterior chamber, iris, crystalline lens and vitreous humor will be followed by demonstrations and practice periods with a variety of biomicroscopes. However, the more thorough training of ophthalmologists during the past several years has definitely changed the needs of those who register for this course. The instructors have correspondingly changed its curriculum to accommodate practitioners who have had experience with the instruments but who wish to perfect themselves also in some of the fundamentals as applied to recent developments.

Beginners are welcome in this course! Some of the teaching group get great satisfaction from guiding the novice through his first steps in the use of this indispensable instrument, and it has been our experience that almost every beginner develops satisfactory proficiency before our working time is completed.

COURSE 42

Rooms 788 & 789 Periods Th-4, Th-5, Th-6

HARVEY E. THORPE, M.D.
Pittsburgh

ROBERT J. MASTERS, M.D.
Indianapolis

ALEXANDER A. KRIEGER, M.D.
Pittsburgh

JOHN MELVIN MASTERS, M.D.
Indianapolis

SAMUEL N. KEY, JR., M.D.
Austin, Texas

FRED M. WILSON, M.D.
Carmel, Ind.

Advanced Slit Lamp Biomicroscopy: Recent Developments

A three-period course—$6.00

1. Slit lamp gonioscopy
2. Use of Hruby lens
3. Slit ophthalmoscopy and cycloscopy with 4-mirror gonioprism and Goldmann 3-mirror lens

These illustrated lectures will be fairly comprehensive. They will cover the new techniques in gonioscopy, the study of the equatorial region of the crystalline lens, and the examination of the extreme retinal and vitreous periphery. The study of the posterior vitreous and retina with the Hruby lens, as well as with the contact lens and biomicroscope will be included in this course.

The first two periods of the course will be devoted to lectures. The last period will be spent in the demonstration room, where the students will be afforded practice with the new instruments utilized in making detailed examinations of the chamber angle, lens periphery, and posterior vitreous. Slit lamp ophthalmoscopy of the central and peripheral retina, which is a recent development, will be stressed; it is especially valuable in finding vitreous bands and peripheral retinal tears, as well as in the differential diagnosis of retinal pathology.

The 9-hour course in Fundamentals of Slit Lamp Biomicroscopy and the 3-hour Advanced Course may be taken separately or combined.

COURSE 43

Room 744 Periods T-4, T-5

HARVEY E. THORPE, M.D.
Pittsburgh

Surgery of Intraocular Foreign Bodies

A two-period course—$4.00

This course will present a comprehensive survey of established and newly developed techniques for the removal of foreign bodies from the eyeball.

Magnetic and nonmagnetic intraocular foreign bodies create special surgical problems. Accurate determination of functional and anatomic damage is important. Methods of evaluation of extent of trauma to ocular tissues and of impairment of vision will be analyzed.

Location of foreign bodies by roentgenograms must be accurate for successful surgery. The electroinductive locator is a distinct help in foreign body localization both before and during operation. These methods of localization will be elaborated in this course.

The surgical technique of removal of foreign bodies must be properly planned from incision to closure. Techniques for removal of foreign bodies from the anterior chamber, iris, lens, ciliary body, vitreous, and retina will be reviewed.

There will be a discussion of the management of associated complications, such as laceration, uveal and vitreous prolapse, traumatic cataract, retinal detachment and infection. A review of preoperative and postoperative care will be included.

COURSE 44

Room 734 Periods W-4, W-5

C. DWIGHT TOWNES, M.D.
Louisville, Ky.

Cataract Surgery: Complications

A two-period course—$4.00

Emphasis will be placed on the prevention of complications arising from cataract surgery. Special attention will be given to complications such as delayed re-formation of the anterior chamber, late loss of the anterior chamber with or without separation of the choroid, adhesions between the hyaloid and corneal incision, and the complications due to rupture of the hyaloid or within the cornea itself.

COURSE 45

Room 728 Periods T-4, T-5

RICHARD C. TROUTMAN, M.D.
Brooklyn

Enucleation Surgery: Complications and Their Management

A two-period course—$4.00

Many advances have been made in recent years in techniques of enucleation surgery and prosthetics. However, the complications resulting from these techniques and the older techniques, both immediate and delayed, have received very little attention. The author, together with Mr. Hugh Laubheimer of Mager and Gougleman, Inc., will discuss the management of these complications and will offer suggestions for the improvement of the cosmetic appearance of the patient. Time will be reserved for questions concerning problems which any of the members of the class may have.

COURSE 46

Room 777 Periods M-4, M-5, T-4, T-5, W-4, W-5

MAYNARD C. WHEELER, M.D.
PHILIP KNAPP, M.D.
New York

Concomitant Strabismus: Diagnosis and Treatment

A six-period course—$12.00

The practical handling of concomitant strabismus will be fully discussed. This will include methods of examination, measurement of the deviation, diagnosis, and sensorial evaluation of convergent and divergent strabismus. The medical treatment, the indications for surgery, the choice of operation, and the postoperative treatment will be considered in detail.

COURSE 47

Room 726 Periods W-4, W-5

GEORGE N. WISE, M.D.
New York

The Mechanism of Retinal Neovascularization

A two-period course—$4.00

Certain embryological and anatomical material will be presented, followed by a discussion of pure venous thrombosis and its subsequent neovascularization.

Retrolental fibroplasia and diabetes, with their complicating venous obstruction and neovascularization, will be discussed. Evidence will be presented to show that the retinal microaneurysm is not a true aneurysm, but represents an abortive attempt at neovascularization.

Eales's disease, with its complicating venous obstruction and neovascularization will be discussed. Other diseases frequently complicated by venous thrombosis and the neovascularization occurring in such cases will be mentioned. The concept of neovascularization here presented will be summarized. Illustrative cases will be cited and kodachrome slides will be shown.

COURSE 48

Room 793 — Periods M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4

Home Study

A ten-period course—$20.00

These discussion periods will be based on lesson material in the Home Study Course in Ophthalmology and will be conducted by the Home Study Course faculty. They will provide a review of basic subjects and will present up-to-date clinical applications.

This course may be attended without fee by current subscribers to the Home Study Courses. Complimentary tickets may be secured by writing to the Home Study Courses office.

M-4—Embryology, Anatomy and Neuro-Anatomy

Raymond E. Meek, M.D.
New York

John Woodworth Henderson, M.D.
Ann Arbor, Mich.

M-5—Physiology

Irving H. Leopold, M.D.
Philadelphia

Robison D. Harley, M.D.
Atlantic City

Hendrie W. Grant, M.D.
St. Paul, Minn.

George P. Guibor, M.D.
Chicago

M-6—Optics and Principles of Biomicroscopy

Arthur Linksz, M.D.
New York

Edwin F. Tait, M.D.
Norristown, Pa.

T-4—Refraction

Manuel L. Stillerman, M.D.
Chicago

Bernard C. Gettes, M.D.
Philadelphia

Frank W. Newell, M.D.
Chicago

T-5—External Diseases, Bacteriology and Virology

James H. Allen, M.D.
New Orleans

Samuel N. Key, Jr., M.D.
Austin, Texas

Henry F. Allen, M.D.
Boston

Samuel J. Kimura, M.D.
Berkeley, Calif.

T-6—Perimetry and Neuro-ophthalmology

P. J. Leinfelder, M.D.
Iowa City, Iowa

Cecil W. Lepard, M.D.
Detroit

W-4—Extraocular Muscles

Hunter H. Romaine, M.D.
New York

Hermann M. Burian, M.D.
Iowa City, Iowa

Conrad Berens, M.D.
New York

W-5—Ophthalmoscopy and Medical Ophthalmology

John P. Macnie, M.D.
New York

William Banks Anderson, M.D.
Durham, N. C.

Frank C. Winter, M.D.
Menlo Park, Calif.

W-6—Pathology

Michael J. Hogan, M.D.
San Francisco

John S. McGavic, M.D.
Bryn Mawr, Pa.

Georgiana D. Theobald, M.D.
Oak Park, Ill.

Th-4—Pharmacology and Therapeutics

Kenneth C. Swan, M.D.
Portland, Ore.

Alfred J. Kreft, M.D.
Portland, Ore.

INDIVIDUAL COURSES — OPHTHALMOLOGY

COURSE 201

Room 706 Period M-4

C. KNIGHT ALDRICH, M.D.
Chicago
BY INVITATION

Emotional Problems in the Ophthalmologist's Patients

The hour will be devoted to a discussion of the causes, symptoms and appropriate treatment of emotional factors in patients seen by the ophthalmologist. The following specific subjects will be covered:

1. General symptomatic manifestations of emotional tension
2. Psychophysiological reactions and the eye
3. Visual hypochondriasis
4. Conversion reactions, such as hysterical blindness
5. The impact of organic disease of the eye
6. Signs of psychosis, with particular reference to visual hallucinations

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COURSE 202

Room 706 Period Th-4

JOSEPH E. ALFANO, M.D.
Chicago

Internal Carotid Artery in Ophthalmology

This lecture, illustrated with lantern slides, will demonstrate pertinent anatomical and ocular aspects of pathologic conditions affecting the internal carotid artery, such as congenital anomalies, thrombosis and, in particular, aneurysms of the internal carotid and its branches in the circle of Willis. Carotid artery cavernous sinus fistula (pulsating exophthalmus) will also be included.

Diagnosis of these conditions will be discussed, using slides to demonstrate the typical symptoms, such as lid and pupillary changes, ophthalmoplegia, exophthalmus and suprasellar calcifications.

Treatment (usually carotid artery ligation) of these conditions as well as the ocular complications following carotid ligation will be presented.

Angiograms showing typical aneurysms of the internal carotid and the circle of Willis will be shown. The technique of angiography and the ocular and systemic complications following angiography will be discussed.

Differential diagnosis of cerebral lesions producing eye signs resembling those produced by disorders of the internal carotid and circle of Willis will be reviewed.

COURSE 203

Room 706 Period M-5

HENRY F. ALLEN, M.D.
Boston

Operating Room Technique

Principles of aseptic technique in relation to eye surgery will be discussed with special reference to instrument sterilization, degerming the skin surface, preparation and preservation of ophthalmic medications and control of air-borne organisms.

COURSE 204

Room 705 Period M-4 or T-4

MOACYR E. ALVARO, M.D.
Sao Paulo, Brazil

Uveitis: Etiology and Treatment

The main subject for discussion will be chronic endogenous uveitis. Topics for consideration will include the incidence of uveitis and its clinical diagnosis by modern methods of examination. The differential diagnosis of granulomatous and nongranulomatous types of uveitis will be discussed with a consideration of the subjective and objective symptoms of each group. The difficulty of establishing an etiological diagnosis will be elaborated and the laboratory procedures and skin tests useful for this purpose will be described. Present-day knowledge of the pathogeny of the disease as a basis for treatment will be reviewed. A practical approach toward early treatment, etiological diagnosis and final treatment of the true etiologic factors will be presented.

COURSE 205

Room 706 Period M-6 or W-6

MARIO AMENABAR, M.D.
Santiago, Chile

Retinal Detachment: Localization and Closure of Tears

To localize the tear, a specially devised transilluminator is applied in the corresponding sector of sclera. When the hole is visualized, another instrument fixes the luminous end of the localizer, leaving a clear mark on the sclera that corresponds exactly to the situation of the tear.

Diathermy is used only when the operator knows exactly where the tear is situated so that it can be circumscribed, leaving the eye with a minimum of coagulation.

To close the tear the scleral area about the hole is treated with a small ball electrode, making independent applications that are not strong enough to close the tear and that are supplemented by very fine penetrating applications surrounding the hole. These intrascleral applications help in evacuating the subretinal fluid, and will not perforate the retina.

Two new instruments, the retinal tear localizer and the scleral marker, will be shown; and two new electrodes will be exhibited.

COURSE 206

Room 724 Period M-6

WALTER S. ATKINSON, M.D.
Watertown, N. Y.

Selection of Procedure for Cataract Extraction

Careful preparation, good anesthesia, akinesia and hypotony can reduce vitreous loss to less than one per cent.

Some advantages and disadvantages of preplaced and postplaced sutures will be discussed, and a few reasons for choosing the limbal-based or fornix-based conjunctival flap will be given.

The Graefe operation will be compared with the keratome or ab externo incision.

COURSE 207

Room 711 Period M-4 or T-4

J. MASON BAIRD, M.D.
Atlanta

Lesions of the Orbit: Differential Diagnosis

A discussion of the diagnostic values and limitations of radiography of the orbit combined with air injection and the use of contrast media. An evaluation of the somewhat controversial method of orbitometry will be made, and the value and dangers of orbitography will be discussed. Differential diagnosis using the indicated techniques for the more common orbital lesions will be outlined. Kodachrome illustrations of pertinent cases will be shown.

COURSE 208

Room 702 Period M-4

ROBERT E. BANNON
Southbridge, Mass.
BY INVITATION

Aniseikonia: Its Role in Refractive Problems

Every new correction of refractive errors changes the seeing conditions to which the patient has become accustomed. The magnitude of these changes and the patient's tolerances determine whether or not binocular vision will be comfortable and efficient. Aniseikonia ("not-equal-images") is one of these conditions. It most frequently arises with the correction of unequal refractive errors, and in certain cases it can cause persistent discomfort.

A brief review of aniseikonia and space eikonometry will be followed by a discussion of various clues and procedures that are useful in detecting aniseikonia in routine office practice.

COURSE 209

Room 728 Period W-5 or Th-5

JOSEPH S. HAAS, M.D.
Chicago

Congenital Glaucoma: Diagnosis and Treatment

Corneal cloudiness, injection of the bulbar conjunctiva, increased lacrimation, or blepharospasm should lead to the sus-

picion of glaucoma even though no enlargement of the eye has occurred. In view of the urgency of early operation, the tension should be tested with a tonometer under ether enesthesia, preferably intratracheal. There should be complete relaxation at the moment the tension is taken. Once the diagnosis is established, 5 per cent prostigmine should be instilled every three hours and goniotomy performed as soon as possible. Denuding the cloudy epithelium of the cornea makes the operation under gonioscopic control possible in over 90 per cent of cases. The present simplified technique of goniotomy is described.

COURSE 210

Room 711 Period M-5

WALTER H. BENEDICT, M.D.
Knoxville, Tenn.

Atrophic Changes of the Iris

A brief resume of the embryology and anatomy of the iris, with particular emphasis on its blood supply and the anatomic distribution of the vessels, will be followed by a discussion of the various kinds of iris atrophy and their cause. A classification of iris atrophy will be presented, and the effects of aging, inflammation, trauma, glaucoma and irradiation will be defined. The problem of primary progressive iris atrophy will be reviewed in the light of present knowledge.

COURSE 211

Room 722 Period M-6

CURTIS D. BENTON, JR., M.D.
Ft. Lauderdale, Fla.

Refraction: Handling the Difficult Patient

The difficult patient is defined as one who is unhappy with recently prescribed glasses or who has never been completely comfortable with glasses. It will be assumed that the problems are not those of improper mechanical fitting of glasses, but rather problems in diagnosis, refraction, and management.

The common conditions found to be sources of complaint in difficult refractive cases will be listed and analyzed. The management of these cases will be discussed under four headings:

1. Understanding the patient's problem
2. Conducting the type of examination most likely to detect the cause of the patient's problem
3. Conducting the examination in a manner that will give the patient confidence in the examiner's ability to correct his problem
4. Explaining to the patient his visual limitations and how his glasses or treatments fit into the over-all picture

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COURSE 212

Room 738 Period T-6

CONRAD BERENS, M.D.
New York

Cyclodiathermy, Cycloelectrolysis, Iridencleisis and Cyclodialysis

The choice of an operative procedure for the control of tension in glaucoma should be carefully considered, not only for its mode of action but also for the over-all long-range performance of the operation. The statistical evaluation of a successful surgical procedure for glaucoma should be based on (1) control of tension within normal limits without the use of miotics, or satisfactory control of tension with miotics; (2) increase in or preservation of the preoperative visual acuity and visual fields; and (3) absence of immediate or long-range complications.

The indications and contraindications for surgery, techniques, the evaluation of operative results, and complications of anterior and posterior cyclodiathermy, cycloelectrolysis, iridencleisis and cyclodialysis will be presented in cases observed for from one to ten years.

COURSE 213

Crystal Room Period M-4

CONRAD BERENS, M.D.
New York

New Procedures in Ophthalmic Surgery

The following intraocular and extraocular surgical techniques will be described, as well as some of their indica-

tions, contraindications, and postoperative results:

1. Evisceration and Enucleation. Introduction of new hollow plastic implants capped with steel mesh, with suture grooves, braided white nylon sutures, and new steel needles.
2. Lamellar Keratoplasty. Demonstration of the use of various new instruments to facilitate the procedure.
3. Correction of Retinal Detachment. Various techniques employed, including internal and external buckling of the sclera.
4. Resection and Advancement of the Levator for Ptosis.
5. Transplantation of the Superior Oblique for Paralysis of Elevation.
6. Retroplacement of the Superior Oblique.
7. Subconjunctival Closure of Cataract Wounds.

COURSE 214

Room 731 Period Th-5

JEROME W. BETTMAN, M.D.
San Francisco

Radioactive Isotopes

This course is designed for the practicing ophthalmologist.

First: A very simple, easily comprehensible explanation of the fundamentals of radioisotopes: A, B, and G emissions; half life; differences in energy. Conditions under which only pure B emitters are useful in diagnosis and experimental work in ophthalmology will be discussed.

Second: A brief consideration of the place and value of radioisotopes in therapy and in diagnosis, including the use and abuse of P^{32} in the diagnosis of intraocular neoplasms.

Third: The experimental use of radioisotopes as an indication of the blood volume of the choroid and retina. This sheds considerable light on which agents actually dilate the intraocular blood vessels and which do not. Deductions of very practical clinical significance will be made.

COURSE 215

Room 712 Period M-4

JEROME W. BETTMAN, M.D.
San Francisco

Value of Goniotomy

Goniotomy is one of the great surgical advances in modern ophthalmology. It has already saved many from a life of total blindness.

The diagnosis, differential diagnosis, and prognosis of congenital glaucoma will be reviewed. Evidence will be presented to demonstrate that goniotomy is the procedure of choice in congenital glaucoma. Each of the modern techniques of goniotomy will be presented. The techniques of goniotomy without visual control, goniotomy with a contact lens, and goniotomy while air is continuously injected will be presented. Their merits will be compared, and the preoperative and postoperative care will be considered.

COURSE 216

Room 727 Period M-5

HAROLD M. BLOCK, M.D.
Dallas

The Office Practice of Ophthalmology

In this course it is our intention to explain office procedures of various types for medical and surgical conditions, with the patients' reaction in mind, and in such a way as to have better patient-doctor relationships. Procedures learned in the clinics and hospitals will be explained from the viewpoint of their application in private practice. The course is especially designed for the young ophthalmologist.

COURSE 217

Room 752 Period M-4 or T-4

TRUMAN L. BOYES, M.D.
New York

Problems in Eye Surgery

All ophthalmologists have surgical problems. Each member of the course is invited to submit one of his problems in writing at the time of the conference, and an attempt will be made to answer these questions definitively and with clarity.

An opportunity will be afforded anyone who may wish to contribute his experience in solving these problems, thus ensuring a good cross section of opinions from men of experience.

COURSE 218

Room 713 Period M-5 or T-5

GOODWIN M. BREININ, M.D.
New York

Electromyography

The principles of electrophysiologic instrumentation as applied to electromyography of the extraocular muscles and to electro-oculography will be described, and the theory and applications of these techniques discussed.

There will be a brief review of neuromuscular conduction. Illustrative slides and tracings will be shown of both normal and abnormal conditions involving ocular motility: comitant and paretic strabismus, ptosis, myopathies and nystagmus.

COURSE 219

Room 744 Period M-6 or T-6

F. PHINIZY CALHOUN, JR., M.D.
Atlanta

Dystrophies and Degenerations of the Cornea

The more common conditions under this heading will be grouped in the light of our present knowledge according to the underlying pathologic process and the site of origin in the cornea. This approach helps to avoid prevalent confusion in terminology and simplifies the clinical recognition of each condition by more closely correlating the clinical findings with the underlying pathologic process.

The course will be illustrated with lantern slides and will include a discussion of present-day methods of therapy in these conditions.

COURSE 220

Room 732 Period W-4 or Th-4

J. V. CASSADY, M.D.
South Bend, Ind.

Dacryocystitis and Lacrimal Drainage

Consideration will be given to dacryocystitis, excessive lacrimation, and lacrimal duct obstruction in adults as well as in infants. Kodachrome illustrations of anatomy, embryology, and pathogenesis of lacrimal drainage problems will be shown. Clinical examination, diagnoses, and treatment will be discussed. Irrigation, probing, palliative treatment, and the use of polyethelene tubing will be considered. A film presenting the Dupuy-Dutemps method of dacryocystorhinostomy will be shown.

COURSE 221

Room 702 Period W-6

J. V. CASSADY, M.D.
South Bend, Ind.

Toxoplasmic Retinochoroiditis

The widespread prevalence of toxoplasmosis in man and animal has caused confusion as to its importance in the etiology of retinochoroiditis. The intelligent treatment of retinochoroiditis should be directed to its cause. Clinical, roentgenologic and serologic study of these patients is mandatory before embarking upon treatment with such dangerous drugs as pyrimethamine and sulfadiazine. Skin tests, blood studies, dye tests, and a thorough understanding of the patient must precede therapy directed against toxoplasmosis.

COURSE 222

Room 728 Period W-4 or Th-4

WEBB P. CHAMBERLAIN, JR., M.D.
Cleveland

Vertical Motor Anomalies

The surgical anatomy and physiology of the vertical muscles will be discussed and emphasis will be placed on the importance of careful analysis in the car-

dinal positions of gaze. The objective methods of testing will be stressed, including properly executed excursions, measurements with prisms, and the head tilt test. Motion pictures will be used to demonstrate diagnostic procedures and to illustrate various anomalies of the vertically acting muscles.

COURSE 223

Room 713 **Period M-4**

MAX CHAMLIN, M.D.
New York

Perimetry: Techniques for Detection of Minimal Defects

Techniques for detection of minimal defects in visual fields caused by early lesions of visual pathways will be demonstrated. The mounting of test objects on permanent carriers, as well as care of these test objects, will be shown. The choice of test objects and methods of recording various field defects will also be demonstrated. Principles which apply to the tangent screen as well as the perimeter will be presented, and the interpretation of minimal findings will be explained. Cases in which the use of the perimeter entirely supersedes the tangent screen, as well as the reverse, will be shown.

COURSE 224

Crystal Room **Period T-6**

PAUL A. CHANDLER, M.D.
Boston

Cataract Surgery: Complications During and After Operation

The principal complication occurring during cataract extraction is loss of vitreous. Steps to avoid loss of vitreous will be discussed. These will include preoperative sedation, techniques in anesthesia and akinesia as well as technical aspects of the operation itself. Of the postoperative complications, glaucoma is among the most important. It may be due to vitreous loss, delayed re-formation of the anterior chamber, or incarceration of iris or lens capsule in the wound. Pupillary block is less common, but it is important that this cause be recognized. Emphasis will be placed on measures designed to prevent the complications which lead to glaucoma, and the treatment of glaucoma will be discussed from a medical and surgical standpoint.

COURSE 225

Room 711 **Period M-6**

EDITH COHOE
Detroit
BY INVITATION

Special Reading Instruction for the Partially Seeing

The discussion will include the methods of teaching reading and the special materials, aids and devices for making the most efficient use of low vision. Individualized guidance with regard to the medical diagnosis of the eye condition will be considered.

Generally speaking, partially seeing children are those who use their eyes as the chief avenue of learning but whose corrected vision is 20/70 to 20/200, or less.

COURSE 226

Room 784 **Period M-4**

EDMOND L. COOPER, M.D.
Detroit

Principles of Muscle Surgery

The aim of muscle surgery is to align the visual axes. In cases in which a functional improvement can be expected, surgery should be considered only a supplement to optical and orthoptic treatment, but alignment must be attained if binocular vision is to be the end result. In cases where only cosmetic improvement can be expected, alignment is none the less important.

It is the purpose of this course to explain the principles which enable us to obtain the proper alignment of the visual axes. Included among these principles are (1) proper diagnosis, (2) early surgery, (3) influence of prognosis, (4) preoperative planning of how much surgery to do and how this is determined, and (5) technique.

A motion picture illustrating the author's recession and resection technique will be shown.

COURSE 227

Room 738 Period M-6

FREDERICK C. CORDES, M.D.
San Francisco

Eye Changes in Diabetes

This course will present the changes that occur in the conjunctiva, cornea, iris, lens, retina and optic nerve as a result of diabetes. In addition, the visual prognosis of the patient in regard to cataract surgery and retinopathy will be discussed at considerable length. The course will be illustrated by kodachrome slides of the ocular conditions and the microscopic changes that occur.

COURSE 228

Room 732 Period T-4

FREDERICK C. CORDES, M.D.
San Francisco

Surgery of Congenital Cataracts

The various operative procedures being used in the surgery of congenital cataracts will be described, with special emphasis on linear extraction. The indications and contraindications for surgery will be given. In addition, the age at which to operate, the choice of operation, and the complications encountered in congenital cataracts will be discussed.

The course will be illustrated by kodachrome slides.

COURSE 229

Room 784 Period M-5

TULLOS O. COSTON, M.D.
Oklahoma City

Inflammatory and Degenerative Disease of the Retina: Differential Diagnosis and Treatment

The subject matter to be covered will include senile macular degeneration, Kuhnt-Junius' degeneration, central angiospastic retinopathy, and the lesions of tuberculosis and toxoplasmosis. The author's method of handling these conditions will be discussed. Colored lantern slides will be shown illustrating the various conditions.

COURSE 230

Room 733 Period Th-4

JACK P. COWEN, M.D.
Chicago

Office Technique for Simplified Gonioscopy

A simple study of the angles of the anterior chamber, particularly in all cases of glaucoma, can be accomplished by a lens-free method of flooding the inner angle of the eye with saline solution and of studying the submerged chamber angle with flashlight illumination and with from five to ten power simple loupe magnification or, better still, with the detached binocular slit lamp head. The method will be demonstrated and discussed.

COURSE 231

Room 734 Period T-6

JOHN C. CUNNINGHAM, M.D.
Burlington, Vt.

Types of Head Pain as Viewed by the Ophthalmologist

The mechanism of head pain will be discussed. The clinical types of headache arising from intracranial, extracranial and paracranial sources will be reviewed. Particular attention will be given to head pain associated with cranial arteritis, migraine and orbital lesions. Lantern slides will be used in the course.

COURSE 232

Room 752 Period W-4 or Th-4

PAUL L. CUSICK, M.D.
Detroit

Ptosis: Differential Diagnosis and Treatment

Blepharoptosis will be reviewed from the standpoint of etiology and treatment of the various types. Surgical procedures

will be illustrated with lantern slides. The levator-shortening operations will be given particular consideration. The treatment of overcorrections will also be discussed.

COURSE 233

Room 784 Period M-6 or T-6

NORMAN L. CUTLER, M.D.
Wilmington, Del.

Cataract: Methods of Extraction

Every ophthalmologic surgeon develops, over a period of years, a definite and somewhat fixed operating procedure for cataract based on his accumulated trial-and-error experience. In this procedure he feels most at home and gets his best results. All of these various methods of intracapsular extraction have been studied, simplified, and refined by different surgeons to get the fewest complications, from the first incision to final vision. It is not the purpose of this instruction hour to review the entire field of cataract surgery. There will be a review of the progress in cataract surgery and a discussion of the present-day trends in incision suturing and methods of lens extraction, including the spoon extraction. Lantern slides and a motion picture will be shown.

COURSE 234

Room 786 Period M-6 or T-6

LOUIS DAILY, JR., M.D.
Houston, Texas

Biomicroscopy of Vitreous and Fundus Oculi

Techniques of examination will be described. The normal and pathologic appearance of these structures will be illustrated with sixty colored transparencies made in Vienna under the direction of Dr. Karl Hruby. Types of detachment of the vitreous in association with pathologic states, including spontaneous collapse of the vitreous, hemorrhage into the vitreous opacities, congenital anomalies, retinitis proliferans, primary and traumatic detachments of the retina, intraocular foreign bodies, tumors and cysts of the choroid, papilledema, retinal cysts, macular edema, chorioretinitis, retinoschisis, and drusen, will be illustrated and described. The clinical significance of these observations will be discussed.

COURSE 235

Room 705 Period M-5

RALPH W. DANIELSON, M.D.
Denver

Retinoblastoma: Differential Diagnosis

Cases of retinoblastoma and pseudoretinoblastoma are seen quite infrequently even in large ophthalmic practices, but it is vitally important to be able to make the correct diagnosis when they are encountered. This instruction course is designed not only to point out the characteristics of each of the many confusing pathologic entities but also to discuss the methods of examination which will aid in avoiding diagnostic mistakes.

COURSE 236

Room 727 Period M-6

ALAN DAVIDSON, M.D.
New Bern, N. C.

Surgical Instruments: Preparation and Care

This discussion is designed for those ophthalmologists practicing in general hospitals who do not have nurses especially trained to care for ophthalmic surgical instruments. Mention will be made of the manufacture, materials, and choice of surgical instruments as well as their sterilization, preparation and care.

COURSE 237

Room 705 Period M-6

FREDERICK A. DAVIS, M.D.
Madison, Wis.

Sutures in Cataract Surgery: Types and Uses

The use of sutures for closure of the cataract incision has, in the past few years, assumed a role almost equal in importance to the incision itself. While sutures are widely endorsed and their

usefulness is generally conceded, the types of needle, suture material, and methods of insertion are still subjects of controversy and vary with different surgeons.

Properly placed sutures afford immediate firm closure of the incision when the lips of the wound are accurately approximated, thereby effecting early restoration of the anterior chamber. They prevent subsequent spreading of the wound, loss of the anterior chamber, and iris prolapse. They permit early ambulation of the patient and occlusion of the operated eye only. The incidence of postoperative hyphema and the amount of astigmatism have been reduced by their use.

This discussion will touch upon the following subjects: types of suture material and their influence on the healing process; types and sizes of needles, with suggestions concerning instruments and their use; and methods of suturing as related to the incision chosen by the surgeon. There will be a discussion of conjunctival and scleroconjunctival sutures, corneal and corneoscleral edge-to-edge or "border-to-border" sutures inserted through the lips of the wound, overriding corneoscleral and episcleral, and track sutures; buried surgical gut; preplaced and postplaced sutures; and suture removal.

COURSE 238

Room 715 Period M-6

SAMUEL M. DISKAN, M.D.
Atlantic City

Visual Screening in Schools

A recent nation-wide movement charging that inadequate visual screening tests are being used in schools demands that ophthalmologists propose an answer to this ever-growing problem.

This course will present an effective method of instituting a practical visual screening program in schools.

A presentation of several visual screening devices now in use, their limitations, advantages and disadvantages; the requirements of an adequate visual screening test; and the problems encountered will be discussed.

COURSE 239

Room 721 Period T-4 or W-4

JOSEPH M. DIXON, M.D.
Birmingham, Ala.

Indirect Ophthalmoscopy in Office Routine and in Intraocular Surgery

Many fundi and fundus lesions can be seen better by indirect ophthalmoscopy than by the direct method. Routine office technique and an outline for the development of skill will be described. An efficient office arrangement which gives the ophthalmologist a choice of direct or indirect ophthalmoscopy as indicated for each patient will be illustrated. Advantages and limitations of the two methods of ophthalmoscopy will be compared for the office, for the bedside, and for the operating room. A brief review of the early development of the indirect method will be presented with illustrations of various types of monocular and binocular equipment.

COURSE 240

Room 726 Period M-4 or T-4

EDWARD A. DUNLAP, M.D.
New York

Divergence Anomalies

These anomalies consist of divergence excess and divergence insufficiency. Both are characterized by certain specific findings that serve clearly to differentiate them from anomalies of convergence. Their location in the general classification of imbalances and statistics on their relative occurrence will be given.

Symptoms of each type will be listed, and the method of diagnosis will be discussed. Typical case measurements and pictures of each type will be shown.

Treatment, both conservative and surgical, will be outlined, and tabulated results of studies on over one hundred surgically treated cases of divergence excess will be presented.

COURSE 241

Room 706 Period T-4 or W-4

JOHN A. EGAN, M.D.
Denver

Cross Cylinder: Application and Theory

The use of the cross cylinder as taught by Edward Jackson will be discussed. Improved models wil be shown and uses devised since Jackson's time will be described.

Lantern slides will exhibit practical application of the cross cylinder. Large 2-foot models of cross cylinder, trial cylinder and trial frame will be used to demonstrate general technique for use in refraction. Twelve different uses of the instrument, including the employment of the newer correcting cross cylinder, will be described.

A brief discussion of theories involved in the cross-cylinder method will be presented, and controversial aspects will be discussed. This method of testing for astigmatism will be contrasted to other methods.

COURSE 242

Room 776 Period M-4

HAROLD F. FALLS, M.D.
Ann Arbor, Mich.

Practical Application of Heredity

The purpose of this course is to present the principles of heredity so that they may be employed by the clinical ophthalmologist in his daily practice. When possible, diseases having hereditary background will be illustrated and discussed. A demonstration of pedigree taking and interpretation will be presented.

COURSE 243

Room 776 Period T-4

HAROLD F. FALLS, M.D.
Ann Arbor, Mich.

Ocular Geriatrics

A comprehensive survey of the ocular changes and disease states associated with senescence will be presented. When possible, a differentiation will be made between universally occurring disease states in the aged eye and those disease processes appearing in senescense but having no direct relationship to the passage of time.

Treatment, care, and management of the senile eye and individual will receive consideration.

COURSE 244

Room 786 Period M-4 or T-4

WALTER H. FINK, M.D.
Minneapolis

Binocular Problems in Routine Refraction

Although the correct selection of lenses solves most of the refractive problems, there remains an appreciable number of cases in which a binocular problem is present to some degree. Because of this, a routine study of the binocular efficiency of all refraction cases is indicated. Although some require a minimum of study, others require an extensive analysis of the binocular function for proper evaluation.

In the presentation, the steps in the investigation of binocular efficiency as carried out in routine refraction are evaluated and the various problems encountered are discussed, particularly the association between heterophoria and the fusional reflexes.

COURSE 245

Room 781 Period M-4

GERALD E. FONDA, M.D.
Short Hills, N. J.

Subnormal Vision: Technique for Examination

The technique for subnormal vision examination with emphasis upon the importance of history taking, nonoptical methods of correction, and the sequence of examination procedures, including the trial of different types of lenses will be considered.

Correction of 75 per cent of cases with subnormal vision can be accomplished

from the trial case by extension of the routine eye examination. The types of lenses used are strong reading additions for monocular and binocular use, doublet magnifiers and telescopic lenses. Bifocals with reading additions up to + 16.00 diopters are successful.

Various lenses will be demonstrated and indications for their use will be explained. Types of ocular pathologic conditions, favorable and unfavorable for correction, will be classified.

COURSE 246

Room 795 Period M-6

F. BRUCE FRALICK, M.D.
Ann Arbor, Mich.

Surgical Anatomy in Operations for Glaucoma

It is essential that every ophthalmic surgeon have an understanding of the anatomy of the eye. Familiarity with normal relationships gives confidence when corrective operations are undertaken in complicated cases. A knowledge of anatomy includes an understanding of the variations from the normal and the effect these variations have in the functioning of the part. The surgical aspects of glaucoma therapy, therefore, require that the operator possess sufficient ocular anatomic insight to permit him to establish adequate drainage of aqueous to compensate for the known pathologic changes which have disturbed the normal physiology of aqueous exchange.

COURSE 247

Room 776 Period M-6 or T-6

BERNARD FREAD, M.D.
New York

Ideal Refraction Equipment: Survey of Instruments Used

Refraction is most important in the daily routine of every ophthalmologist. A good part of each working day is spent with details of refraction and not enough emphasis has been placed upon the tools necessary to make refraction easier, more accurate, and less time-consuming.

Every major refraction instrument manufactured in the United States and in the larger optical plants of England, France, Germany, Italy, Japan and Switzerland will be discussed. About two hundred lantern slides will graphically illustrate this equipment.

Attention will be given not only to elementary equipment used by the beginner but also to elaborate devices used for the objective and subjective measurement of refraction of particular interest to the experienced ophthalmologist.

The name, function, manufacturer, and current cost of the various instruments will be reported.

COURSE 248

Room 776 Period M-5

WILFRED E. FRY, M.D.
Philadelphia

Inflammatory and Degenerative Lesions at the Posterior Pole of the Eye: Differential Diagnosis

Not only must a differential diagnosis be made between inflammatory and degenerative lesions at the posterior pole of the eye but these conditions must also be distinguished from malignant lesions. The factors governing diagnosis of malignant lesions at the posterior pole of the eye will differ from those governing diagnosis of lesions in the midzone or in the anterior segment. When the lesion is in the midzone or the anterior segment, distinction must be made between a serous and a solid detachment. When the lesions are in the posterior segment the diagnosis must be made upon the ophthalmoscopic appearance plus all other information that can be afforded by a complete examination of the patient.

The situation is different when the macula alone is involved, or when the region of the disc is involved.

Types of lesions as they involve the macula and the perioptic region will be illustrated and the management discussed.

COURSE 249

Room 713 **Period T-4**

SHELLEY R. GAINES, M.D.
New Orleans

Ophthalmologic Examination from a Neuro-ophthalmologic Viewpoint

In this course, a routine of examination for both office patients and hospital consultations is given from the viewpoint of doing a neuro-ophthalmological examination with a minimum of equipment and conservation of time.

COURSE 250

Room 776 Period T-5

SAMUEL GARTNER, M.D.
New York

Fundus Diseases: Clinical and Pathological Correlations

The fundus pictures in many diseases will be correlated with their clinical course and essential pathologic findings. Numerous photomicrographs of eyes obtained at autopsy will be demonstrated. The vascular diseases, diabetes, and a number of neurological disorders, including papilledema, optic neuritis, multiple sclerosis and the chiasmal syndrome will be studied.

COURSE 251

Room 732 Period T-5 or W-5

HAROLD GIFFORD, M.D.
Omaha

Surgical Procedures on Lacrimal Apparatus

This course will present a review of the common surgical techniques used in tear sac surgery. The surgical anatomy of the region will be covered. The technique of transplantation of the tear sac will be described in detail with lantern slides and motion pictures.

COURSE 252

Room 795 Period T-6 or W-6

JOHN F. GIPNER, M.D.
Rochester, N. Y.

Recent Advances in Ophthalmology

This course will present (1) a review of the advances in the surgical handling of congenital cataracts; (2) newer techniques in glaucoma surgery; (3) a resume of the lecturer's preferred intracapsular cataract extraction technique; and (4) as much of other newer surgical techniques as time allows.

COURSE 253

Room 776 Period W-5

ISADORE GIVNER, M.D.
New York

Eye Changes in Systemic Disease

The diagnosis of a systemic disease is frequently suggested by a study of the eyes. Emphasis in this course will be on how this is brought about. The material will be grouped in four categories.

1. Eye muscle changes in systemic disease. Hyperthyroidism, postencephalitic Parkinson syndrome, myasthenia gravis, erythema nodosum, Guillain-Barre syndrome, and chordoma show characteristic findings.
2. Systemic diseases suggested by slit lamp study. Hepatolenticular degeneration, Kaposi's varicelliform dermatitis, syphilis, brucellosis, sarcoidosis, blood sludging, xanthomatosis, leprosy, and nutritional disorders may first have attention drawn to them by a study of the eyes.
3. Fundus findings in systemic disease. Diabetic, nephritic, and hypertensive retinopathies, collagen diseases, phakomatoses, blood dyscrasias, and subacute bacterial endocarditis have their representation in fundal pictures.
4. Composite eye findings. The diagnosis of sarcoidosis, increased intraocular pressure, Vogt-Koyanagi disease, Stevens-Johnson disease, and subarachnoid hemorrhage may be confirmed by various eye changes grouped for diagnostic purposes.

COURSE 254

Room 734 Period W-6

DAN M. GORDON, M.D.
New York

Visual Aids

This course will consist of a practical demonstration of the use of various forms of magnification as applied to problems of the near blind. Theory will be held to an absolute minimum, and office procedures will be stressed.

COURSE 255

Room 740 Period M-6

MILLARD E. GUMP, M.D.
Oakland, Calif.

Recurrent Iridocyclitis: Differential Diagnosis and Treatment

The nearly universal use of the corticosteroids in treating iridocyclitis is lulling our medical conscience to sleep. These drugs block inflammation so well that they foster an attitude of less diligence in the attempt to establish a specific diagnosis and to seek out and eliminate etiologic factors.

A review of the differential diagnosis of iridocyclitis will be made. A routine of investigation used at a county hospital, a veterans' hospital and a Naval hospital will be discussed and evaluated.

Treatment with special reference to the corticosteroids and foreign protein will be considered.

JOSEPH A. HAAS, M.D.
(See Course 209, p. 265)

COURSE 256

Room 702 Period M-5 or T-5

ELIOTT B. HAGUE, M.D.
Buffalo

Irradiation in Ophthalmology

In this course the practical aspects of applying radioactive material to the eyes will be discussed and demonstrated. Since it is now well known that radium has notable therapeutic value in some eye disease, for which there is a dearth of other effective treatment, a commonsense and sufficiently detailed approach to the safety factors involved will be attempted. Use of the technical language of radiology will be avoided except as accessory background.

COURSE 257

Room 713 Period W-4

GEORGE M. HAIK, M.D.
New Orleans

The Mechanics of Intracapsular Cataract Extraction

The primary objective of cataract surgery is to deliver the lens by a technique which is at the same time simple and safe, and which is attended with a minimum of postoperative complications. In spite of the numerous improvements which have been introduced, a technique which meets all of these criteria has not yet been found. On the contrary, all of the techniques now employed are sometimes associated with serious hazards and may be followed by serious complications.

For many years intracapsular extraction has been the preferred technique of cataract surgery. One reason, perhaps, that it is not yet as satisfactory as it might be is that too little attention has been paid to the preliminary steps of releasing the lens from its attachments and its subsequent subluxation. When these steps have been accomplished properly, without rupture of the lens capsule, the remaining steps of the operation are usually relatively easy.

COURSE 258

Room 726 Period M-5

HAROLD A. HANNO, M.D.
Philadelphia
BY INVITATION

Internal Medicine: Problems Pertinent to Ophthalmology

The topics to be included, time permitting, are the following:

1. Indications and contraindications for typhoid fever therapy, ACTH, and adrenocortical steroids
2. The prevention and treatment of postoperative medical complications in eye surgery
3. Management of the "cougher" in eye surgery

4. Local versus general anesthesia in eye surgery
5. The etiologic diagnosis of uveitis
6. Anticoagulant therapy in eye surgery

COURSE 259

Room 781 or Room 715 — Period M-5 or Period Th-4

S. ALBERT HANSER, M.D.
St. Louis

Studies in Ocular Allergy

This lecture will include methods used in testing for allergies such as the following: history, provocative tests, conjunctival tests, patch tests, skin tests, and injection tests. Special emphasis will be placed on the conjunctival scrape smear, including a discussion of the preparation and examination of the slide.

Kodachrome slides will be presented by Dr. H. B. Stauffer of Jefferson City, Missouri.

COURSE 260

Room 711 or Room 715 — Period T-5 or Period Th-5

ROBISON D. HARLEY, M.D.
Atlantic City

Lesions of the Third, Fourth and Sixth Cranial Nerves: Topical Diagnosis

Topical diagnosis of lesions of the third, fourth and sixth cranial nerves requires a systematic consideration of the orbit, cavernous sinus, base of the brain, brain stem, nucleus and supranuclear connections. This course in the differential diagnosis of various motor anomalies of the eye and the associated signs is designed especially for the practicing ophthalmologist. Anatomy will be reviewed in describing various syndromes as they occur in this clinical approach to the subject. Short case histories will be utilized for illustration of important signs and symptoms.

COURSE 261

Room 713 — Period W-5

HAROLD L. HARRIS, M.D.
Evanston, Ill.
BY INVITATION

Anesthetic Agents and Techniques for Use in Ophthalmic Surgery

The course will include a review of the anesthetic agents and methods that are useful in producing safer general anesthesia for ophthalmologic surgery. Methods of avoiding cough, laryngospasm, respiratory obstruction and depression will be described.

Premedication of patients for surgery under local anesthesia will be discussed in detail. The emphasis will be on choosing a combination and dosage of narcotic and sedative drugs that will produce the desired quietude and that will also obviate the irrational behavior that is sometimes seen in older patients. This unpredictable behavior may complicate the surgical period or may require abandonment of the operation at the scheduled time.

COURSE 262

Room 715 — Period W-4

WILLIAM H. HAVENER, M.D.
Columbus Ohio

Abnormalities of the Optic Disc

This course will present discussion of abnormalities of the optic disc, considered under the headings of papilledema, optic neuritis, intraocular inflammations, vascular disorders, degenerative changes, and physiologic variants. Features of value in ophthalmoscopic differentiation will be stressed.

COURSE 263

Room 706 — Period T-5

MARION W. HESTER, M.D.
Lakeland, Fla.

Clinical Photography in Ophthalmology

The best methods for making pictures of the eye will be described from the viewpoint of the ophthalmologist. Photography can be done in the regular course of a busy practice with only a slight in-

crease in the time required for the examination. Methods used by the author in taking still pictures of the external eye and fundus pictures will be discussed. Making motion pictures of eye surgery will be considered if time permits.

COURSE 264

Room 724 Period W-6

MICHAEL J. HOGAN, M.D.
San Francisco

Lesions of the Choroid: Their Pathologic Significance

A correlation will be made of the clinical aspects of various diseases of the choroid with the pathologic findings in these same diseases. The discussion will include the following topics: hypertension, choroidal vascular disease, arteriosclerotic disease, senile macular degeneration, disciform degeneration, angioid streaks, drusen, and benign and malignant melanomas.

COURSE 265

Crystal Room Period W-5

WILLIAM F. HUGHES, JR., M.D.
Chicago

Advances in Diagnosis and Surgical Treatment

Recent advances in surgery, including diagnostic procedures for surgical conditions, operative technique, and the management of operative and postoperative complications, will be presented for a few selected conditions. Operative technique will be illustrated by motion pictures and stereophotographs.

COURSE 266

Room 786 Period M-5

CHARLES E. ILIFF, M.D.
Baltimore

Ptosis

The surgical anatomy of the lids, on which all ptosis surgery is based, will be discussed in detail and illustrated with slides.

The various types of ptosis, such as congenital, senile, traumatic, and jaw winking, will be discussed. Operations using the frontalis, the superior rectus, and levator muscles, will be reviewed, with particular stress on the indication and use of each procedure.

A simplified ptosis operation which shortens the levator and Muller's muscle, thus increasing the primary elevating force to the lid, and which enhances the secondary elevating action of the superior rectus and frontalis, will be demonstrated by a motion picture.

COURSE 267

Room 750 Period M-4

JERRY H. JACOBSON, M.D.
New York

Electroretinography

The change in the electrical status of the retina when it is functioning can be detected and recorded by the relatively simple technique of electroretinography. The test has been shown to be of value in the early diagnosis of retinal degenerations, in retinal detachment, and in evaluation of the status of a retina obscured from ophthalmoscopic view by cataract or vitreous or corneal opacity.

This course will include a description of the technique of the test, with emphasis on the facility with which it can be performed in almost any hospital and a discussion of present and future applications. A motion picture will illustrate the actual technique. The related electrophysiological technique of electromyography will also be discussed.

COURSE 268

Room 786 Period T-5

ARTHUR J. JAMPOLSKY, M.D.
San Francisco

Ocular Divergence: Management

Anomalies of divergence follow a general pattern of exophoria, intermittent exotropia at distance, intermittent exotropia at distance and near, and constant exotropia. The importance of suppression, both axial and hemiretinal, is paramount

in proper surgical or orthoptic management. The prognosis and methods of treatment (optical, orthoptic, and surgical) differ markedly in exophoria, intermittent exotropia, and constant exotropia. The function of fusional divergence is to be differentiated from the passive and active factors producing intermittent and constant exotropia. The sensory and motor mechanisms in divergence anomalies differ in visually young and visually adult patients, and the management should be modified accordingly.

COURSE 269

Room 702 **Period M-6**

FRITZ JARDON
Detroit
BY INVITATION

Fitting Ocular Prostheses

The entire field of prosthesis-fitting, following various surgical procedures, will be discussed. Subjects of interest will include enucleation, evisceration, Tenon's capsule implants, integrated implants, secondary implantation and socket restoration.

Use of pressure conformers in correcting abnormalities in sockets and in enlarging sockets and lids in children born without an eye, the preparation for well functioning prostheses, and methods which give best cosmetic end results will be discussed.

Taking molds of sockets for cover lenses and eyes will be explained, as movement is often greatly improved when the prosthesis is made over a mold.

Color slides will be shown.

COURSE 270

Room 784 **Period T-4**

LESTER T. JONES, M.D.
Portland, Ore.

The Lacrimal Drainage System: Complicated Conditions

Recent dissection studies will be used to clarify the surgical anatomy of the medial canthus and to introduce two new anatomic concepts: (1) the lacrimal diaphragm, and (2) the lacrimal pump.

Surgical procedures will be described for the cure of epiphora when conventional tear sac surgery has failed and in conditions in which parts of the lacrimal drainage apparatus are missing. The following procedures are advocated:

1. Slitting the canaliculus: the proper indications
2. Canaliculodacryocystostomy
3. Canaliculorhinostomy
4. Conjunctivodacryocystostomy
5. Conjunctivorhinostomy
6. Surgical care of acute injuries of the lacrimal apparatus
7. A method for reopening a closed intranasal tear sac ostium

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COURSE 271

Room 784 **Period T-5**

HAROLD H. JOY, M.D.
Syracuse, N. Y.

Role of Cerebral Angiography in Ophthalmology

The presence of an unexplained visual defect should always suggest the possibility of an intracranial lesion. Since not only vision but life itself may be at stake, early diagnosis is essential. In such cases angiography will frequently demonstrate the location and the character of the lesion sooner than any other measure.

The object of this course is to familiarize ophthalmologists with this important diagnostic procedure. After a review of the normal anatomy of the arteries and visual pathways at the base of the brain, the principles of angiography as related to ophthalmology will be discussed. This will be followed by the projection of angiograms accompanied by case reports demonstrating the diagnosis of intracranial lesions affecting the chiasm and optic nerves.

COURSE 272

Room 743 **Period M-6**

KELVIN A. KASPER, M.D.
Philadelphia

Dacryocystorhinostomy

Following the classical Mosher-Toti technique, with some variation, an attempt will be made to demonstrate the

simplicity and safety of this combined external and intranasal operation on the lacrimal sac in a bloodless field, with all structures outlined and easily identified under direct vision. The regional anatomy, the various structures encountered, and the limits of safety during the operation will all be demonstrated. Preoperative preparation, exact technique of local anesthesia, and postoperative care will also be outlined.

Fresh cadaver material will be used to clarify the various operative steps, and a motion picture will be shown.

COURSE 273

Room 727 Period M-4

DEWEY KATZ, M.D.
Hartford, Conn.

Ophthalmic Anatomy: Clinical Significance and Application of Recent Advances

In this course there will be a discussion of the clinical applications of the recent advances in our knowledge of the anatomy and histology of the eyeball. Among the topics which will be discussed are the clinical import of our present ability to outline and measure the eyeball in situ, especially as it pertains to refractive states and intraocular foreign bodies; the aqueous veins and their probable clinical significance; and new information regarding the vitreous body and the retina. There will also be some discussion of lesser known anatomical structures and the clinical implications of their recognition.

COURSE 274

Room 726 Period M-6 or T-6

ROSCOE J. KENNEDY, M.D.
Cleveland

Practical Perimetry

This course will cover the important aspects of perimetry, including technique, anatomy of visual pathway, interpretation of visual field defects, and the clinical evaluation of visual fields in everyday practice. The value of colored test objects will be discussed. Reports of cases that exemplify (1) field defects characteristic of lesions involving the visual pathway and (2) field defects indicative of glaucoma will be presented and discussed.

COURSE 275

Room 711 Period W-4 or Th-4

ALFRED KESTENBAUM, M.D.
New York

Chiasmal Diseases: Modern Diagnosis

The differential diagnosis of the numerous lesions in the region of the chiasm has been improved by development of arteriography and analysis of the field defects.

The lesions may be divided into eight topical groups according to the direction from which the chiasm is attacked: posterior superior (third ventricle), posterior (posterior suprasellar tumors and diseases of the optic stalk), posterior inferior (part of the endosellar tumors), anterior inferior (most of the endosellar tumors and arachnoiditis), anterior (anterior suprasellar tumor), anterior superior (aneurysm of an anterior artery), lateral (aneurysm of the carotid), obliquely growing endosellar tumor, and finally, lesion of the chiasm itself (glioma, trauma). Superior and inferior groups are characterized by the field quadrant first, or mainly, affected. Anterior lesions affect not only the chiasm but also central vision. Absence of macular loss signifies posterior lesions, in which the noncrossing macular fibers are preserved. Combinations allow the differentiation between the first six groups. A lateral lesion causes normal hemianopia or a lateral chiasmal syndrome (homonymous hemoanopia plus macular loss in the eye opposite to the hemianoplia).

COURSE 276

Room 750 Period M-5

JOHN E. L. KEYES, M.D.
Cleveland

Retinal Vascular Disease: Ophthalmoscopic Studies

Ophthalmologists are expected to evaluate intraocular disease. Many of these diseases have a definite prognostic bear-

ing on the visual acuity and on the life expectancy of a patient.

Disease of the retinal vascular system, often with associated retinopathy, offers an opportunity to do much for an afflicted person. Recognition of the earliest evidence of disease of the retinal blood vessels makes a more favorable prognosis possible. Even well established disease of the retinal arterioles with retinopathy can occasionally be reversed.

Pertinent case reports will be presented and illustrated by lantern slides in color.

COURSE 277

Room 750 Period M-6 or T-6

THOMAS J. KIRBY, M.D.
Rochester, Minn.

Problems in Presbyopia

This course is intended primarily to discuss special problems that arise in prescribing for the presbyopic patient. Management of the prepresbyopic patient who has unusual demands made upon his eyes will be covered. Special occupational needs for presbyopic patients will be dealt with in detail, including the application of occupational multifocal lenses. The prescription of lenses for patients with very unusual working distances also will be discussed.

COURSE 278

Room 784 Period W-4 or Th-4

BERTHA A. KLIEN, M.D.
Chicago

Clinical Pathology of the Retina

The clinical manifestations of a diseased retina and pigment epithelium and their pathogenesis in general will be discussed prior to a demonstration of the specific findings in a selected group of diseases of the retina, including diabetes, macular lesions of vascular origin, and several other retinal diseases due to vascular pathologic processes.

COURSE 279

Room 711 Period T-6

ABRAHAM L. KORNZWEIG, M.D.
New York

Practical Embryology

A study of the embryology of the eye has many practical values for the ophthalmologist. It enables him to understand the structure of the eyeball by seeing how it developed. This helps him to appreciate the functioning of the different parts of the globe. Above all, it aids in the differentiation of defects in the eye due to developmental and hereditary causes from those due to environmental conditions.

A series of slides will be shown demonstrating critical periods in the development of the human eye. Special attention will be given to abnormalities of the position of the eye; congenital cataracts; congenital hydrophthalmos; typical colobomas of the iris, choroid, ciliary body and optic nerve; aniridia; microphthalmia; abnormalities of the optic disc; congenital defects in the retina; and retrolental fibroplasia.

COURSE 280

Room 706 Period W-5 or Th-5

BERNARD KRONENBERG, M.D.
New York

Practical Ocular Therapeutics

This course will present therapeutic measures for the most common and frequent ocular problems. Diseases of the cornea, uvea, vitreous and retina will be discussed. The course will also delineate the limitations of our knowledge in the therapy of some of the baffling diseases. An attempt will be made to keep the discussion on a practical level.

COURSE 281

Crystal Room Period W-4

PETER C. KRONFELD, M.D.
Chicago

The Choice of the Surgical Procedure in Glaucoma

There exist now in the ophthalmic literature very considerable data on the re-

sults of the various glaucoma operations in the various types of glaucoma. In some respects these data are conclusive in that they point out, for given situations, a definite superiority of one surgical procedure over another. The data also show a strong personal factor in the sense that the surgeon's skill and familiarity with the operation influences its result. The latter factor is more clearly discernible in trephinings than in iris inclusion operations or cyclodialyses.

Aside from the type of glaucoma present, the reactivity of the individual eye is an important factor. A good deal about this factor can be learned from the response of the eye to previous operations.

The choice of operation is particularly critical in angle-closure glaucoma in which, in a good many instances, the patient's natural outflow channels can be utilized.

COURSE 282

Room 705 Period T-5 or W-5

BRENDAN D. LEAHEY, M.D.
Lowell, Mass.

Corneal Transplantation

Practical points in preparatory surgery and therapy, operative techniques, and complications will be stressed, with special emphasis on current trends in graft fixation. Various types of overlying and direct sutures and splints will be shown along with several recently designed instruments. The newest version of the author's preplaced track suture method wil be included. With this technique, silk sutures are inserted, running 1 mm. on each side of the trephine mark. These are stained with methylene blue and pulled through, leaving blue tracks for the subsequent direct sutures. Corresponding preplaced sutures are inserted in the graft with the aid of a plastic turret-style holder. For grafts up to 6 mm. in diameter, overlying sutures are also utilized.

The lecture will be illustrated by a series of ninety slides and a short motion picture with sound of one operation.

COURSE 283

Room 781 Period M-6

PLACIDUS J. LEINFELDER, M.D.
Iowa City, Iowa

Papilledema and Optic Neuritis: Differential Diagnosis

The relationship of disturbed physiology of the vascular system to edema of the nerve head is basic in the understanding of edema of the disc. How the same alteration in vascular physiology can be caused by several conditions will be explained; through this, the differential diagnosis of papilledema can be clarified.

COURSE 284

Room 705 Period T-6 or W-6

PLACIDUS J. LEINFELDER, M.D.
Iowa City, Iowa

Perimetry and Use of the Tangent Screen

The practicability of the two methods of examination will be considered in relation to their value in diagnostic and follow-up examinations. Sufficient discussion of the theory will be included to enable the student to understand the reasons for preference of one method over the other. Definition of the precise requirements for field taking will be stressed.

COURSE 285

Room 705 Period W-4 or Th-4

ALBERT N. LEMOINE, JR., M.D.
Kansas City, Mo.

Vitreous Opacities

The anatomy and embryology of the vitreous will be briefly reviewed. The physical and chemical properties found in the normal and pathologic vitreous will be summarized.

Specific types of vitreous opacities to be considered are congenital remnants of the embryonic vascular system, protein

coagula, synchysis scintillans, asteroid hyalitis, inflammatory exudates, blood, and retinitis proliferans.

Therapeutic measures will be discussed.

COURSE 286

Room 705 Period Th-5

ROBERT W. LENNON, M.D.
Joliet, Ill.

Therapy of Acute Inflammatory Glaucoma

The therapy of acute inflammatory glaucoma will be divided into medical and surgical categories. Medical treatment will be discussed from the standpoint of local and oral medication. Special reference to the pharmacologic and physiologic actions of all the drugs employed in acute glaucoma will be made. Parasympathomimetic and sympathomimetic agents will be reviewed. Miotics will be classified and their physiologic action on the pupil described. A review on diamox will be given, and this drug's role in the treatment will be explained.

Surgery of acute inflammatory glaucoma will be discussed with special reference to the types of surgery as well as to the timing of the procedures.

The lecture will be supplemented by the use of colored slides to explain the therapy discussed.

COURSE 287

Room 777 Period W-6
or or
Room 731 Period Th-4

CECIL W. LEPARD, M.D.
Detroit

Eye Diseases Common to Children

Those ocular diseases occurring primarily in children constitute a group of special interest to the ophthalmologist, particularly when the method of examination or the differential diagnosis differs from that for those diseases in the adult. The technique and results of examination of premature infants will be discussed. The following syndromes will be discussed: neuroblastoma, chloroma, Schuller-Christian's disease, and eosinophilic granuloma. The discussion will be illustrated by lantern slides showing photomicrographs and findings in the eye and orbit.

COURSE 288

Room 727 Period W-4

IRVIN LEVY, M.D.
Trenton, N. J.

Motion Picture Photography in Ophthalmology: Methods and Highlights

In this course we will start with a brief discussion of general motion picture photographic technique. There will be a detailed discussion of ophthalmologic photography, including examples of recommended types of equipment such as cameras, lenses, lights and other accessories. Specific details of photographic technique will be given, with an attempt to simplify and standardize ocular photography. Good and bad examples will be shown and discussed. The technique of sound as an accessory to photography will be briefly demonstrated.

COURSE 289

Room 781 Period T-4 or W-4

PHILIP M. LEWIS, M.D.
Memphis

External Diseases

This course will consist of a clinic based on about 200 kodachrome slides showing diseases of the lids, conjunctiva and cornea. Several new slides are added each year. The differential diagnosis and the methods of treatment, both medical and surgical, will be discussed.

COURSE 290

Room 781 Period T-5 or W-5

ARTHUR LINKSZ, M.D.
New York
EDWIN F. TAIT, M.D.
Norristown, Pa.

Telescopic Lenses and Magnifying Systems

"Telescopic spectacles" are small Galilean telescope systems of special design made for people with poor central vision. Their usefulness is limited.

"Microscopic spectacles" are essentially strong plus lenses, or strong plus additions to the patient's distance correction. They are extremely useful and should be prescribed much more often than they have been in the past. Their design, indications for use, and some simple rules of thumb for the prescribing clinician will be described and illustrated with actual case histories.

COURSE 291

Room 778 Period M-4

JAY G. LINN, JR., M.D.
Pittsburgh

Paralyses of the Motor Nerves to the Eye

This discussion will include a brief consideration of the normal physiology of ocular movements, followed by a discussion of the neuroanatomy of the nerves and centers involved in these movements. The objective findings of paralyses of the motor nerves will then be discussed, with consideration of the characteristics of involvement of the peripheral, nuclear, and supranuclear pathways. A motion picture of cases illustrating lesions characteristic of the various regions will conclude the presentation.

COURSE 292

Room 706 Period T-6

RALPH I. LLOYD, M.D.
Brooklyn

Diseases of the Cornea

The period will be devoted to a discussion of the diagnosis and treatment of various acquired and hereditary lesions and of the vision loss and intractible ulcers following posterior endothelial dystrophy and dendritic keratitis. Transplants and lamellar keratectomies have proved so successful that established practices must be adjusted to the brighter outlook.

COURSE 293

Room 721 Period W-5

RALPH I. LLOYD, M.D.
Brooklyn

Fundus Lesions of the Senile Eye

Time takes its toll of the elastic tissues of the body, including those in the choriocapillaris and the lamina of Bruch. The lamina of Bruch is believed to control the passage of nourishment to and waste products from the percipient layers of the retina. The macular layer of tapetum (choriocapillaris and pigment layer, with the lamina between) is particularly vulnerable to the effects of age. The first indications are sclerosis of the vessels of the choriocapillaris and atrophy of the pigment. Although these early symptoms may reach an advanced stage, there may be little effect upon the vision. Hole in the macula is an indication of the advance of this process. Another advanced sign is a stripping-up of the pigment layer, resulting from exudate or hemorrhage, which is seen as pseudotumor. This may eventually result in either Coats's disease or disciform degeneration.

Differential diagnosis between pseudotumor, metastasis and sarcoma of the choroid, angiospastic retinopathy, and organized exudates will be discussed, and the modest results of therapy will be detailed.

COURSE 294

Room 702 Period T-4

COL. AUSTIN LOWREY, JR. (MC)
Washington, D. C.

Tropical Ophthalmology

This course will present a discussion of the principal eye diseases and ophthalmological problems that are encountered

in the tropics. Emphasis will be placed on etiology, pathology, symptoms and clinical findings. Subclinical types of the diseases and treatment will be described. The lecture will be illustrated with clinical pictures and photomicrographs.

COURSE 295

Room 702 Period T-6

VIRGINIA LUBKIN, M.D.
New York

Psychosomatic Aspects of Ophthalmology

Analysis of the highly significant role of psychogenic factors in ophthalmology. Presentation of typical case material illustrative of problems which arise in daily practice. A review of contemporary experimental research in this important area.

COURSE 296

Room 715 Period T-6

CYRIL M. LUCE, M.D.
Philadelphia
BY INVITATION

Wound Healing

Of the various ocular wounds, the one of major interest to the average ophthalmologist is that following cataract extraction. Since the integrity of the wound represents an important factor in the avoidance of early and late complications, it is of interest to study both the normal and abnormal healing of cataract incisions. The healing of wounds, both with and without sutures, and the use of permanent and absorbable sutures will be discussed.

Mention will be made of the healing of the wound following lamellar scleral resection, of conjunctival wounds in various muscle procedures, and of the flap in several glaucoma operations.

COURSE 297

Room 796 Period M-6

ANGUS L. MacLEAN, M.D.
Baltimore

Surgical Management of Cataracts

This subject will be considered with respect to preliminary examination, preoperative preparation, the operation, and postoperative care. The general preliminary examination, including necessary specific tests, and the detailed local examination of the eye will be outlined. Preoperative preparation, including both general and local procedures, will be discussed. Significant points in the operative technique will be considered, including the use of the conjunctival flap as opposed to no flap and the choice of techniques for the extraction of the lens. Postoperative care, from the procedures immediately following the operation to the final refraction and fitting with glasses, will be comprehensively discussed.

There will be a motion picture demonstration.

COURSE 298

Room 743 Period T-4
or or
Room 726 Period Th-4

JOHN P. MACNIE, M.D.
New York

Head Trauma with Ocular Symptoms

Ocular symptoms and signs associated with trauma to the head will be considered. The mechanisms whereby head injuries may lead to ocular changes will be outlined, and the effect upon the eye of involvement of the various cranial nerves and portions of the brain will be analyzed. The ocular effects of intracranial hemorrhage and injuries in the region of the cavernous sinus will be discussed, and the ocular evidence of skull fracture will be considered.

COURSE 299

Room 713 Period M-6 or T-6

AUREL E. MANGOLD
New York
BY INVITATION

Proper Fitting of Glasses

This discussion will stress the following subjects:

1. The necessity of analyzing the prescription so that the finished glasses will give maximum comfort and efficiency

2. Anisometropic and unusual prescriptions and their effects on visual comfort
3. The importance of individual pupillary distance measurements
4. Lens form and its effect on visual comfort
5. The importance of vertex distance
6. The proper selection of bifocals in cases of hyperopia and myopia
7. Colored lenses
8. All types of telescopic and microscopic systems
9. Methods of determining causes of patients' complaints with finished glasses
10. Suggested procedure for examination of a pair of glasses

COURSE 300

Room 711 Period W-5 or Th-5

MORTIMER MANN, M.D.
Indianapolis

Hypertensive Vascular Changes in the Fundus

The proper interpretation of the changes produced in the fundus as a result of arterial hypertension depends on their correlation with other clinical and laboratory data. The various ophthalmoscopic findings in essential hypertension, malignant hypertension, toxemia of pregnancy, and acute and chronic nephritis will be presented and discussed in relationship to other manifestations of these diseases. The extent to which observations of the fundi are helpful in prognosis and treatment will also be considered.

COURSE 301

Room 713 Period W-6

WILLIAM A. MANN, M.D.
Chicago

Functional Visual Impairment

Determination of functional loss of vision after elimination of all organic bases. Differential diagnosis of malingering and hysteria, with practical tests to be employed. Correct evaluation of importance in compensation cases. Occurrence of functional visual disturbance in nonindustrial and nonmilitary private practice: recognition and treatment.

COURSE 302

Room 784 Period W-5 or Th-5

DON MARSHALL, M.D.
Kalamazoo, Mich.

Chronic Infections of the Lids

The diagnosis and therapy of eyelid infections which are generally, or often become, chronic will be discussed. Conjunctivitis and lacrimal disease will not be stressed. Among the less common infections included in the discussion will be Parinaud's syndrome, herpes zoster, molluscum, and a few fungous and parasitic lesions. The approach will be entirely clinical and practical. The lecture will be illustrated by kodachrome slides.

COURSE 303

Crystal Room Period T-4

A. EDWARD MAUMENEE, M.D.
Baltimore

Surgical Indications for the Various Corneal Procedures

The use of conjunctival flap, keratectomy, lamellar corneal graft, and penetrating corneal graft will be discussed in relation to the treatment of corneal ulcers, keratitis, corneal dystrophies, and scars. The indications and contraindications for beta irradiation in the treatment of vascularization of the cornea before and after such surgical treatments will also be mentioned.

COURSE 304

Room 727 Period T-6

P. ROBB McDONALD, M.D.
Philadelphia

Value of Tinted Lenses

A tinted lens is formed merely by the addition of a neutral filter or some color to crown glass, which cuts down the total transmission. Absorptive lenses are designed to aid the eye by absorbing certain bands or irradiations in order to protect the external eye and the refractive media of the eye. The various optical properties and physiologic need of these two types of lens will be discussed. The harmful effects of radiant energy will be described.

COURSE 305

Room 740 Period W-6

JAMES L. McGRAW, M.D.
Syracuse, N. Y.

Contact Lenses

In this course the relative merits of contact lenses as compared with spectacles will be presented. The advantages and disadvantages of the various types of contact lenses will be reviewed. Among the lenses to be discussed are the conventional fluid lens, the corneal lens, and the ventilated lens.

Comparative fitting time, wearing time, and subjective and objective effects of the various lenses will be discussed. Indications and contraindications for contact lenses will be presented.

COURSE 306

Room 776 Period W-4 or Th-4

WILLIAM P. McGUIRE, M.D.
Winchester, Va.

Heterophoria and Heterotropia: Surgical Treatment

The course will deal with the various surgical procedures for the correction of extraocular muscle imbalance. It is felt that before surgery is undertaken, it is most important that a correct diagnosis be established, and this phase of the subject will be stressed. Particular attention will be paid to the noncomitant deviations and to the different methods of correcting such imbalances. A short motion picture on correction of paresis of the superior oblique will be shown.

COURSE 307

Room 778 Period M-5

GEORGE R. MERRIAM, JR., M.D.
New York

Radiotherapy

The role of radiotherapy in ophthalmology will be discussed and indications and contraindications enumerated. Attention will be directed to the late effects of irradiation, a knowledge of which is essential to the proper utilization of this form of therapy.

COURSE 308

Room 776 Period W-6 or Th-5

SAMUEL J. MEYER, M.D.
Chicago

Surgical Treatment of Glaucoma

The surgical principles of the treatment of glaucoma will be elaborated upon. The indications for the various types of operations will be correlated with the gonioscopic findings. Indications for surgery of the various secondary glaucomas will be given. The treatment of the complications of glaucoma surgery will be reviewed.

COURSE 309

Room 743 Period T-5

RICHARD A. MILLER, M.D.
Memphis

Corneal Disease

This course will consist of a kodachrome demonstration of corneal diseases. A brief review of the normal histology and physiology of the cornea will be included along with the diagnosis and treatment of the various dystrophies and diseases seen in practice.

COURSE 310

Room 750 Period T-4 or W-4

W. HOWARD MORRISON, M.D.
Omaha

Office Management of Glaucoma

The control of glaucoma as an office procedure will be considered. Attention will be directed to the action of medications and their proper prescription. Particular emphasis is to be placed upon the use of miotics together with oral diamox.

The importance of the individual's phasic variation pattern in relation to the proper timing of treatment will be stressed.

The rate and frequency of tonography, tonometry, gonioscopy, ophthalmoscopy and biomicroscopy, refraction and perimetry will be discussed. A consideration of office records, environmental difficulties and patient education will be undertaken.

COURSE 311

Room 786 Period W-4 or Th-4

CARROLL R. MULLEN, M.D.
Philadelphia

Ophthalmic Emergencies

Treatment of acid and alkali burns of eye and adnexa, and causes and treatment for sudden loss of vision, with special attention to anticoagulant medication, will be discussed. Value of roentgenologic studies in ocular injuries with consideration of emergency surgical approach and prognosis and handling of anterior chamber hemorrhages, iris prolapse, and iridodialysis will be studied. Emergency care of lid injuries and trauma to extraocular muscles will also be emphasized.

COURSE 312

Room 778 Period M-6

WILLIAM F. MURRAH, JR., M.D.
Memphis

Aids for Subnormal Vision: Clinical Evaluation

The author will list and classify the visual aids which he has used in improving the vision, either distance or near, of the patient whose best vision, aided or not aided by glasses, is poor and unsatisfactory.

These various aids for subnormal vision, including telescopic and microscopic devices, will be described and evaluated as to their physical characteristics and optical properties and how they may be used.

The amount of improvement found in the different grades of subnormally poor vision in a series of 45 patients following use of the various devices will be shown.

COURSE 313

Room 721 Period M-4

ROLAND H. MYERS, M.D.
Memphis

Vertical Phorias and Tropias

This course will consist primarily of a discussion of clinical cases illustrated with kodachrome slides showing patients before and after surgery. Measurements of the muscle deviations before and after surgery will be presented on lantern slides. The diagnosis and type of treatment given in each case will be discussed.

COURSE 314

Room 781 Period W-6

GLENWAY W. NETHERCUT, M.D.
Chicago

Chorioretinitis: Etiology and Treatment

This course will deal first with the anatomy and physiology of the choroid and retina essential to an understanding of the inflammatory processes which affect them. A thorough description will be given of the inflammations produced by syphilis, tuberculosis, toxoplasmosis, and various other infections. The importance of an accurate clinical history in making a diagnosis will be illustrated. Differential diagnosis and the available effective treatments will be discussed. Mention will also be made of various treatments that have been tried and found to be of little or no value. Tumors, colobomas, and various other chorioretinopathies will be included in the discussion of differential diagnosis. Diagrams, kodachrome slides, and pictures will be used to illustrate the lecture.

COURSE 315

Room 786 Period W-5 or Th-5

JAMES A. OLSON, M.D.
Detroit

Iritis, Iridocyclitis, Keratitis: Differential Diagnosis and Treatment

This course will present a review of the differential diagnostic points in nongranulomatous and granulomatous inflammations of the anterior uveal tract and the nonsuppurative inflammatory lesions of the cornea. Attention will be directed to the current methods of therapy, including the use of corticotropin (ACTH), cortisone, and hydrocortisone. The efficacy of the various methods of administering these agents, the dosages, and the problem of prolonged treatment and repeated treatment will be discussed.

The use of antibiotics and the other supportive therapeutic measures in selected cases will be presented. Attention will be directed to the continued importance of careful physical examinations and the subsequent correction of possible causative focal defects or generalized disease processes.

COURSE 316

Room 778 Period T-4

HUBERT O. PAULSON, M.D.
Lincoln, Neb.

Lighting for Comfortable and Accurate Seeing

Illumination plays as important a part in correction of asthenopia as do refractions and orthoptics. Many industrial and home visual tasks can be accomplished much more efficiently and comfortably with proper illumination. The five requirements of illumination will be presented according to more recent standards. The proper use of fluorescent and incandescent sources of light will be discussed.

COURSE 317

Room 738 Period W-6 or Th-6

BRITTAIN F. PAYNE, M.D.
New York

Extraction of Complicated Cataract

The successful extraction of complicated cataracts depends on the experience of the surgeon, the preparation of the patient, good anesthesia, simple technique and reliable assistants.

1. Congenital and Juvenile Cataract. The operation for congenital cataract may revert to the simple discission procedure rather than the "two-stages" rapid extraction.
2. Cataract Complicated by High Myopia and Fluid Vitreous. Extraction of cataracts complicated by high myopia and fluid vitreous is successful if good anesthesia and control of the patient are obtained.
3. Cataract with Glaucoma Filtration. A filtering cicatrix with iris inclusion may be preserved by making a corneal incision anterior to it.
4. Discission Operation for Secondary Membrane. A secondary membrane may be resistant and require excessive manipulation to clear the pupil. Such procedures may cause iridocyclitis, detachment of the retina, or secondary glaucoma from hemorrhage.
5. Cataract Extraction with Glaucoma. Good anesthesia and softening of the eye with xylocaine and hydase is essential for successful extraction of the lens when the intraocular tension is increased. A generous iridectomy is necessary and should be used.

Kodachrome slides and motion pictures in color will be presented.

COURSE 318

Room 777 Period M-6 or T-6

CHARLES A. PERERA, M.D.
New York

Retinal Detachment

Successful surgery in serous detachment of the retina depends upon a knowledge of the etiologic factors, the preoperative study of the patient, and the technique of operation. In addition to a discussion of these subjects, this course will deal with the prognosis as affected by preoperative and operative findings.

COURSE 319

Room 726 Period T-5

RALPH H. PINO, M.D.
Detroit
and
D. F. EDWARDS
Chicago
BY INVITATION

Correction of Aphakia

We can either understand problems arising from use of aphakic lenses and aid in lessening them or expect commercial interests to take advantage of our inability to deal with them. The patient holds the doctor responsible.

Through the use of plastic forms, semitranslucent fluids, etc., these following basic principles upon which satisfactory results depend will be discussed, illustrated, and demonstrated.

I. The condition of the postoperative pupil
II. The speed of light
III. The width of the beam of light
IV. The optical density of the corrective lens and refractive media
V. The color of the corrective lens
VI. The relationship of the beam of light to the optic axis of the lens and visual axis of the eye
VII. Effects of the angle at which the beam strikes the lens and refractive media
VIII. The dioptric power of the lens
IX. The mathematics of aberration (simplified)
X. The type of lens and position of mounting

Note: Private conferences and demonstrations can be arranged during the week of the Academy if desired.

COURSE 320

Room 726 Period W-6

RALPH H. PINO, M.D.
Detroit
and
D. F. EDWARDS
Chicago

BY INVITATION

Problems in Bifocals

There are two principal causes for trouble with bifocal lenses:

A. Failure of the ophthalmologist to understand the problem
B. Advantage taken by commercial interests of this lack of understanding

We show methods of eliminating handicaps by demonstrating simple optical mechanics through the principle of visual education in the use of plastic forms, and semitranslucent fluids in prisms, cylinders and spheres, visualizing:

1. Why rays of light passing through prisms turn toward the base
2. Why adherence of the beam to the optic axis is essential
3. The effect of oblique rays in aberration
4. The simple mathematics of aberration
5. Obstacles preventing rays of light from conforming to the intended pathways designated in the prescription

Note: Opportunity for private conferences and demonstrations will be available during the Academy week.

COURSE 321

Room 713 Period Th-4

ADOLPH POSNER, M.D.
New York

Glaucomatocyclitic Crises

The syndrome of glaucomatocyclitic crises constitutes a clinical entity which should be differentiated especially from acute narrow angle glaucoma. The syndrome is characterized by recurrent attacks of unilateral acute glaucoma, usually without marked congestion and associated with cells in the aqueous and a small number of keratic precipitates. The diagnosis can be made from the history of recurrences and the slit lamp finding of keratic precipitates. This syndrome should be suspected in any case of acute glaucoma in which the angle is not closed during the attack.

The course will deal with the clinical manifestations, differential diagnosis, and therapeutic management of glaucomatocyclitic crises.

COURSE 322

Room 786 Period W-6

M. HAYWARD POST, M.D.
St. Louis

Refinements of Refraction: Methods and Measures for Meeting the Problems Encountered

We take up the study of specific problems, such as those of the child with esophoria or esotropia, or exophoria or exotropia, and the proper handling of such cases. The difficulties encountered in vertical imbalance will also be considered. There will be a brief discussion of cycloplegic and noncycloplegic refraction and subjective methods, pointing out the value of the latter, especially with patients of high intelligence. Special problems, such as those of the diabetic, will be considered. How to handle the presbyope and a consideration of the proper correction for these individuals will be an important subject. Contact lenses will be discussed in some detail, both with regard to their

use in myopia and in the aphakic eye. Aphakia will be considered from many points of view, and finally, the functional, or psychosomatic, aspects of refraction and the great need for careful consideration of the whole patient in the handling of these cases will be taken under consideration.

This course will not deal with problems of optics or the mathematics of refraction.

COURSE 323

Room 727 Period W-5 or Th-5

LELAND H. PREWITT, M.D.
Ottumwa, Iowa

External Eye Diseases Associated with Allergy

I. Diagnosis
   a. Discussion of diagnostic procedures, including use of an allergic-history-and-treatment form covering the patient's life from infancy to the present illness
   b. Classification of lesions involving the lids, lid margins, lacrimal apparatus, conjunctiva, cornea and sclera into general groups, such as contact, atropic, infectious, seborrheic
   c. Demonstration of skin tests and cytology

II. Treatment
   a. Treatment by an elimination program in the following types of allergy: (1) inhalants, (2) contacts, (3) foods, and (4) psychosomatic origin
   b. Establishment of dosage by (1) the titration method; (2) severity of patient's symptoms (using high, medium and low dose therapy)
   c. Use of specific therapy, nonspecific therapy, and psychotherapy, such as: specific, house dust antigen; nonspecific, staphylococcus toxoid; psychosomatic, search for underlying cause

III. Importance of constant re-evaluation of therapy and review of running history

IV. Case histories illustrated with colored slides

COURSE 324

Room 796 Period W-6

M. ELLIOTT RANDOLPH, M.D.
Baltimore

Advanced Glaucoma: Treatment

This course will consist of a review of the rationale of various types of medical and/or surgical treatment of cases with advanced glaucoma, with analysis of particular types of advancing field defects and the appropriate medical or surgical treatment.

Advancing glaucoma in the presence of cataract, cataract following glaucoma surgery, glaucoma in the presence of retinal lesions, and the control of pain in absolute glaucoma will be discussed.

COURSE 325

Crystal Room Period M-6

ALGERNON B. REESE, M.D.
New York

Orbital Tumors: Differential Diagnosis and Treatment

Orbital lesions in general will be discussed, and in particular, tumors and simulating conditions will be considered. An attempt will be made to present a practical discussion of diagnosis and treatment. Special consideration will be given the surgical approach to various problems concerned.

COURSE 326

Room 778 Period T-5

A. BENEDICT RIZZUTI, M.D.
Brooklyn

Tumors of the Lids and Ocular Adnexa

This course will deal with a practical discussion of the more common tumors involving the lids and the ocular adnexa, including the lacrimal gland, lacrimal sac, caruncle, and orbit.

Highlights of the diagnostic clinical aspects, pathologic anatomy, and medical and surgical therapy will be emphasized. The salient features will be illustrated by colored lantern slides prepared by the author.

COURSE 327

Room 781 Period T-6

R. WINSTON ROBERTS, M.D.
Winston-Salem, N. C.

Early Diagnosis of Glaucoma

Since the most successful handling of glaucoma demands that therapy be begun in its early stages, screening techniques for glaucoma case finding are outlined. Detailed study of suspected cases will be discussed, with special emphasis on modern techniques of tonometry, tonography, visual field testing, provocative testing, and gonioscopy. Findings used in making a diagnosis and proper classification of very early glaucoma cases will be reviewed.

COURSE 328

Room 750 Period W-6

CARL J. RUDOLPH, M.D.
South Bend, Ind.

THEODORE F. SCHLAEGEL, M.D.
Indianapolis

Chemotherapy

Because new agents are being developed at such a rapid rate that the ophthalmologist finds it difficult to keep abreast, this course will include a practical review of basic features of pharmacology and therapeutics as applied to ophthalmology. Drugs in the following categories will be discussed: antibiotics, sulfonamides, fungicides, and parasiticides.

COURSE 329

Room 743 Period T-6

ALBERT D. RUEDEMANN, JR., M.D.
Detroit

Physiologic Changes Due to Vertical Muscles

Congenital vertical muscle weakness causes changes in the whole body structure as it attempts to adapt to the requirement for binocular single vision. The changes include a head tilt, with compensatory shift of the whole spine to neutralize the ocular muscle defect and, at the same time, maintain a reasonably erect posture. The course will deal with these changes and their recognition.

COURSE 330

Room 750 Period T-5 or W-5

RALPH O. RYCHENER, M.D.
Memphis

The Lacrimal Apparatus

This course will present a general review of the lacrimal apparatus, with special emphasis on the treatment of some of the minor but rather troublesome phases encountered in private practice, as well as the more dramatic and quite satisfactory methods of tear sac surgery. The office management of congenital stenosis and the more popular techniques of dacryocystorhinostomy will be fully illustrated with slides.

COURSE 331

Room 740 Period T-6
or or
Room 734 Period Th-4

HERMAN D. SCARNEY, M.D.
Detroit

Value of Slit Lamp (Biomicroscopy) in Office Diagnosis

The expensive initial investment in a biomicroscope, which has come to be recognized as an indispensable part of the examining equipment of the clinical ophthalmologist, can return many dividends in accuracy of diagnosis and prognosis, and in indications of possible procedure in treatment afforded by no other means.

The value of routine biomicroscopy in office diagnosis will be emphasized by presenting a series of kodachrome slides illustrating fairly common lesions of the lids, conjunctiva, cornea, anterior chamber, iris and lens. Biomicroscopy of the fundus with the Hruby lens will also be discussed.

COURSE 332

Room 796 or Room 744 — Period T-6 or Period W-6

HAROLD G. SCHEIE, M.D.
Philadelphia

Surgery for Congenital Glaucoma

The surgical treatment of juvenile and infantile glaucoma will be discussed. The development of goniopuncture and the results obtained with this treatment in cases of juvenile glaucoma will be presented. The author's method of goniotomy for infantile glaucoma will be illustrated by slides and a motion picture. An analysis of the results obtained from goniotomy, goniopuncture, and a combination of the two will be made.

COURSE 333

Room 727 — Period Th-4

VIRGIL J. SCHWARTZ, M.D.
Minneapolis

Eye Changes Associated With Skeletal Diseases

This large and fascinating field poses many interesting problems to the ophthalmologist. The most important of these is the matter of recognition and diagnosis.

After a brief review of embryology, and with the help of a quick reference outline and illustrative slides, our discussion will bring out the salient features of each of these diseases, including among others:

I. Dysostoses: hypertelorism; Crouzon's disease; Romberg's disease; Treacher-Collins syndrome; Marfan's syndrome; Van der Hoeve's syndrome; Touraine - Solente - Gole syndrome; oxycephaly; melanosis
II. Collagen diseases: scleromalacia perforans; Sjogren's disease
III. Metabolic diseases: gout; osteomalacia
IV. Phacomatoses: tuberous sclerosis; Von Recklinghausen's disease
V. Abiotrophies and lipoidoses: xanthomatosis; Laurence-Moon-Biedl syndrome; gargoylism
VI. Torticollis

Basic terminology will be defined. Anatomic and pathologic synonyms for the eponymic titles will be given.

COURSE 334

Room 733 — Period Th-5

JAMES S. SHIPMAN, M.D.
Camden, N. J.

Scleral Resection

1. The indications for this operation as a primary procedure:
   a. Failure of the detached retina to settle back in place with bed rest
   b. High myopia
   c. Aphakia
   d. Retinal folds or vitreous bands
   e. As a secondary procedure in cases where less formidable methods have failed
2. Preoperative study and preparation of the patient
3. Operative procedure:
   a. Partial or lamellar type of resection less hazardous and preferable
   b. Anatomic landmarks on sclera, such as position of vortex veins, macula, recti, and oblique muscles
   c. Position, size, and shape of the area of sclera to be resected
   d. The operative technique will be illustrated with slides, showing different steps from beginning to end
4. Postoperative treatment and management, complications, and results

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COURSE 335

Room 721 — Period Th-4

G. VICTOR SIMPSON, M.D.
Washington, D. C.

Convergence Insufficiency and Divergence Excess: Diagnosis and Nonsurgical Management

The diagnosis and nonsurgical management of horizontal muscle imbalances will be considered in this course. Emphasis will be given to the criteria for recognition of convergence insufficiency. The variations in which outward deviations of the eyes for distance occur will be discussed, and the findings upon which a diagnosis of divergence excess can be made will be given.

The proper use of the following measures in the management of these imbalances will be emphasized:

1. Correction of errors of refraction
2. Strengthening of convergence movements by pin-to-nose exercises and loose prism exercises
3. Use of prisms in glasses
4. Strengthening fusion by orthoptics
5. Cautioning the patient against allowing a relaxation of his attention to occur which results in day dreaming or staring

The management of divergence excess may be a failure under all forms of treatment unless suppression, which resulted when the one eye moved out, is properly understood and overcome. When suppression has been overcome, the treatment of divergence excess is very much like the management of convergence insufficiency.

COURSE 336

Room 721 Period W-6

G. VICTOR SIMPSON, M.D.
Washington, D. C.

Probing of the Nasolacrimal Duct in the Adult: Indications and Technique

The aim of this course is to draw attention to a variety of symptoms, in addition to epiphora, which will be relieved by improving the drainage through the nasolacrimal duct.

Simple measures, such as dilating the puncti or syringing the canaliculi and nasolacrimal passages, are ineffective, but probing can be relied upon to correct the basic defect.

The subject will be discussed under the following headings:

1. Functions of the tears
2. Symptoms of inadequate drainage through the lacrimal passages or indications for probing
3. Determination of the patency of the lacrimal passages
4. Anatomy of the lacrimal passages
5. Frequency and position of strictures
6. Technique of probing
7. Presentation of new probing instruments
8. Evaluation of results

A motion picture will be presented showing the technique of the procedure of probing.

COURSE 337

Room 715 Period W-5

M. PUIG SOLANES, M.D.
Mexico, D. F.
BY INVITATION

Uveomeningitis Syndromes: A Special Group of Uveitides with Systemic Involvement

There is at present a trend to assemble in a common group, "uveomeningitis," three diseases: sympathetic ophthalmia, Harada's disease and Vogt-Koyanagi's disease. These three entities have in common a bilateral and severe uveitis with systemic involvement. This occurs as a rule in Vogt-Koyanagi's and Harada's diseases, and occasionally in sympathetic ophthalmia.

The clinical and pathologic facts for the integration of this new nosographic group will be discussed in the course.

COURSE 338

Room 736 Period Th-4

EDMUND B. SPAETH, M.D.
Philadelphia

Selection of Surgery for Complicated Ptosis

Congenital, as well as acquired, ptosis is truly an oculomotor situation. Extraocular muscles other than the levator are very frequently involved. The sequence of surgical procedures for all parts of the symptom complex is usually important in determining success or failure. In addition to the oculomotor situation, the complicated ptosis includes, of necessity, the lid anomalies of the canthal angles represented by blepharophimosis and the various forms of epicanthus.

The correction of these conditions will be considered.

COURSE 339

Room 784 Period W-6

EDMUND B. SPAETH, M.D.
Philadelphia

Plastic Surgery: Practical Aspects

This course is designed for consideration of the plastic correction of those defects of the eyelids and the orbit which

result from the surgical therapy of malignant lesions of these structures. In discussing these cases, the surgical treatment of the lesion must be included. This portion of the discussion will be secondary, however, to the consideration of techniques for plastic reconstruction of the resultant defects. The subject will be subdivided to include (a) lid margin defects; (b) major lid reconstruction with an intact functioning eyeball; and (c) lid and orbital defects connected with an eviscerated orbit.

The course will cover the practical aspects of this subdivision of ophthalmic plastic surgery.

COURSE 340

Room 702 Period W-4 or Th-4

ELLIS H. STEFFENSEN, M.D.
Detroit

ACTH, Cortisone and Hydrocortisone in Ophthalmology: Contraindications, Complications and Clinical Value

Indications for the use of ACTH, cortisone and hydrocortisone in the treatment of ocular diseases will be discussed.

Currently accepted therapeutic programs for the treatment of acute and chronic lesions will be outlined, together with the precautionary measures necessary for the protection of the patient from possible adverse pharmacologic side effects. The physiologic basis for the use of these drugs in the treatment of various ocular lesions will be briefly reviewed.

COURSE 341

Room 711 Period W-6

H. SAUL SUGAR, M.D.
Detroit

Office Diagnosis of Glaucoma

The office program for diagnosis of the glaucomas will be considered from the viewpoint of the first visit, medical follow-up, and postoperative office care.

The psychologic basis of the oculist-patient relationship in cases of glaucoma will be considered. Instructions to the patient and methods of office diagnosis, including gonioscopy, slit lamp examination and provocative testing, will be reviewed. Tonography will be considered.

COURSE 342

Crystal Room Period T-5

KENNETH C. SWAN, M.D.
Portland, Ore.

Advances in Ophthalmic Therapy

It is our purpose in this lecture to review and evaluate recent developments in ophthalmic therapeutics. During the past several years a number of promising therapeutic agents have been introduced. These include anesthetics, analgesics, antibiotics, autonomic drugs, tranquilizing agents, hormone-like agents, enzymes, and antimetabolites. New concepts of drug action are evolving, and some principles of applying older drugs are being revised. The ocular pharmacology of some of the new agents and examples of their use will be presented.

COURSE 343

Room 712 Period W-4 or Th-4

I. S. TASSMAN, M.D.
Philadelphia

Retinopathy in Diabetes

The distinguishing features and significance of the ophthalmoscopic changes occurring in the course of diabetes will be described. The relationship of the retinopathy to other clinical manifestations of the disease will be discussed.

An attempt will be made to correlate some of the recently described histopathologic changes in the retina with the clinical course of the disease.

The relationship of dysfunction of the autonomic nervous system, the Kimmelstiel-Wilson syndrome and other disorders associated with diabetic retinopathy will be discussed.

The question of whether there is a factor, or factors, occurring in the course of the disease which will produce a retinopathy in some diabetic patients and not in others during the same period of time will be discussed.

The management of the diabetic patient and the effect of present-day therapy on the development of retinopathy in all stages of the disease will be fully considered.

COURSE 344

Room 712 or Room 724 — Period W-5 or Period Th-5

FREDERICK H. THEODORE, M.D.
New York

Ocular Therapeutics

An appreciation of the potentialities and the limitations of the agents at our disposal is a prerequisite for effective therapy. Many new and potent drugs are now widely used in ocular therapeutics. Valuable as they are, their introduction has posed therapeutic problems other than the dangers from injudicious use.

A practical clinical approach will be made to the treatment of external diseases of the eye, with a critical evaluation of those drugs, both old and new, currently used for this purpose. The action of the drugs, indications and specific contraindications for their use, the capricious behavior and unreliability of some of them, and methods for their application will be considered in detail. The importance of vehicles in general, the choice of appropriate ones, and specific problems and dangers inherent in the prescribing of ophthalmic drugs will be stressed. The necessity for differentiating drug reactions due to allergy from drug reactions due to irritations will be discussed from the therapeutic point of view. General principles concerning the treatment of ocular eczemas will be outlined. The entire lecture will be illustrated by kodachrome lantern slides of clinical cases.

COURSE 345

Room 733 — Period M-6 or T-6

ALFRED UIHLEIN, M.D.
Rochester, Minn.
BY INVITATION

Neuralgias of the Head: Treatment

Most of the pain about the head and face can be outlined along definite nerve pathways. The most logical treatment is to eradicate the cause, but all too frequently this is impossible. Neuralgia should be differentiated from neuritis. The former is a sharp, intermittent pain along the distribution of a given nerve. Neuritis, on the other hand, produces pain that is continuous and lacinating and is frequently accompanied by tenderness, paresthesia or anesthesia; motor paralysis is present if a mixed nerve is involved. For simplicity in diagnosis and treatment, the neuralgias of the head can be divided into minor and major types. The diagnosis and treatment of facial pain in relation to the major and minor neuralgias will be presented to encourage discussion.

COURSE 346

Crystal Room — Period W-6

DERRICK VAIL, M.D.
Chicago

Surgery of the Senile Cataract

This course will consist of a description and discussion of the various methods and techniques of cataract surgery, with emphasis on the mechanical principles involved. Time will be devoted to the various steps performed during the operation, leaving out the preoperative and postoperative care of the patient. Principles of various types of incision, instrumentation, a discussion of suture material, and principles of wound healing that have a bearing on the type of incision used will be emphasized. Particular attention will be paid to the application of forceps or erisophake to the capsule of the lens, and the various types of delivery of the lens will be mentioned. The course will be illustrated with slides and motion pictures.

COURSE 347

Room 727 — Period W-6 or Th-6

EVERETT R. VEIRS, M.D.
Temple, Texas

External Dacryocystorhinostomy and Corrective Procedures for Epiphora

The diagnosis and treatment of tear sac infections will be presented. External dacryocystorhinostomy will be described in detail and illustrated by a motion picture and lantern slides.

The etiology and correction of epiphora in the various age groups will be discussed. Corrective measures will be illustrated, particularly stressing epiphora in the aged.

COURSE 348

Crystal Room Period M-5

FRANK B. WALSH, M.D.
Baltimore

Neurological Syndromes

Several neurologic syndromes will be considered in this course.

In regeneration of the 3rd nerve, misdirection of the regenerated fibers accounts for abnormal movement of the eyelids and pupil on the side of the lesion.

Raeder's syndrome (paratrigeminal syndrome) is characterized by pain about the eye and evidence of obstruction of the sympathetic nerves of that eye. It is important in differential diagnosis.

The syndrome of the apex of the orbit is interesting from the standpoint of topical diagnosis.

Parinaud syndrome must be considered in diagnosis.

The importance of the oculocardiac reflex in cases of injury will be discussed.

COURSE 349

Room 712 Period W-6 or Th-5

C. WILLIAM WEISSER, M.D.
Pittsburgh

Chronic Uveitis: Differential Diagnosis and Treatment

1. Differential diagnostic problems
2. Problems of specific diagnosis
3. Comparison of old and new therapeutic methods
4. Review of various illustrative cases

COURSE 350

Room 734 Period M-4

HAROLD F. WHALMAN, M.D.
Los Angeles

Practical Points in Eye Surgery

This broad subject will be narrowed down to certain particular considerations that are likely to ensure the most satisfactory results in eye surgery. Evaluation of patient personality and selection of cases for local or general anesthesia will be discussed. Aspects of operating room technique essential to asepsis and the elimination of irritants will be described. The use and abuse of medication such as sedatives and antibiotics will be discussed, as well as the application of local medication, dressings, and protective measures for the eye. A few selected surgical procedures will be described.

COURSE 351

Room 715 Period W-6

GEORGE N. WISE, M.D.
New York

Fundus Changes of the Optic Nerve Head

The discussion will include the normal disc, its congenital variations and pathologic changes. Kodachrome slides of these conditions will be followed by pathologic sections of similar lesions. Illustrative cases will be cited.

COURSE 352

Room 702 Period W-5 or Th-5

EVERET H. WOOD, M.D.
Madison, Wis.

Inflammatory Central Retinal Lesions: Diagnosis and Treatment

CONTINUOUS COURSES AND PANEL DISCUSSIONS
OTOLARYNGOLOGY

COURSE 101

Room 731 Periods Th-2, Th-3

DAVID BREWER, M.D.
and
F. B. BRIESS
BY INVITATION
Syracuse, N. Y.

Voice Therapy

A two-period course—$4.00

Many principles of voice therapy have been known to European laryngologists and voice investigators for many years. American recognition, application, and advancement of these principles is a very recent chapter. Many voice abnormalities present no recognizable laryngoscopic appearance. Further vocal abuse may result in visible singer's nodes, contact ulcers, edematous cords, and polypoid changes.

Speech therapists have dealt with some success with a few of these problems. Surgery usually spells recurrence. Relaxation techniques give good results in many cases; yet the same approach may produce damage in such a large number of patients that it should not be used indiscriminately.

Voice therapy directed toward production of dynamic equilibrium of the intrinsic and cricothyroid muscles causes the disappearance of the visible lesions and the audible abnormalities. Methods of testing and treating currently being used by one laryngologist-voice therapist team are presented. The lecture will be illustrated by model and tape recordings.

COURSE 102

Room 710 Periods T-1, T-2

COURSE 103

Room 710 Periods W-1, W-2

JOHN J. CONLEY, M.D.
JOHN F. DALY, M.D.
New York
and
CHARLES L. MARTIN, M.D.
Dallas
BY INVITATION

Carcinoma of the Head and Neck: Diagnosis and Treatment

A two-period course—$4.00

This two-hour course is being presented twice, as Course 102 on Tuesday and as Course 103 on Wednesday. **Please select course number according to day on which you wish to attend.**

The course includes an analysis of cancers involving all the major systems of the head and neck area: the various types of malignant tumors involving the epithelium, sinuses, ear, lips, tongue, buccal mucosa, palate, nasopharynx, floor of the mouth, hypopharynx, parotid gland, cervical lymphatics, thyroid gland and cervical esophagus (larynx intentionally omitted because of its inclusion in other courses).

A discussion of the diagnosis of these malignant tumors will be based on the pertinent factors in the history, physical examination, roentgenograms, chemical tests, and various biopsy techniques relative to each case.

A discussion of treatment will include the curative effects of various types of surgery and irradiation and combinations of these two techniques. It will also include the worth-while palliative efforts in the management of incurable cancer by surgery, irradiation or combinations of these techniques.

COURSE 104

Room 722 Periods T-1, T-2

JOHN MARQUIS CONVERSE, M.D.
New York

Principles of Nasal Plastic Surgery—Basic

A two-period course—$4.00

The main steps in the typical corrective nasal plastic operation will be reviewed. The course will be illustrated by slides and motion pictures.

COURSE 105

Room 722 Periods Th-2, Th-3

JOHN MARQUIS CONVERSE, M.D.
New York

Principles of Nasal Plastic Surgery—Advanced

A two-period course—$4.00

This course is more advanced than the preceding one and deals with conditions such as nasal deviations and saddle nose, in addition to the main steps in the typical corrective nasal plastic operation.

COURSE 106

Room 726 Periods T-2, T-3

COURSE 107

Room 726 Periods Th-2, Th-3

KENNETH L. CRAFT, M.D.
Indianapolis

Nasal Allergy: Diagnosis and Treatment

A two-period course—$4.00

This two-hour course is being presented twice, as Course 106 on Tuesday and Course 107 on Thursday. Please select course number according to day on which you wish to attend.

I. Symptoms of nasal allergy

II. Diagnostic procedures in nasal allergy
- A. History
- B. Examination of nose
- C. Roentgen examination
- D. Cytology of nasal secretions
- E. Nasal polyps: their significance
- F. Skin tests

III. Treatment of nasal allergy
- A. Nonspecific treatment
- B. Specific treatment
- C. Surgery in nasal allergy

IV. Case reports demonstrating points discussed in diagnosis and treatment

V. Questions and open discussion

COURSE 108

Room 721 Periods T-2, T-3

COURSE 109

Room 721 Periods W-2, W-3

FRED W. DIXON, M.D.
Cleveland

FRANCIS A. SOOY, M.D.
San Francisco

ROBERT GOODALE, M.D.
Boston

Rhinologic Problems

A two-period course—$4.00

This two-hour course is being presented twice, as Course 108 on Tuesday and as Course 109 on Wednesday. Please select course number according to day on which you wish to attend.

The purpose of this course is to provide an open forum for the exchange of ideas regarding present-day rhinologic problems.

It cannot be denied that the introduction of the first sulfonamide in 1937 and of penicillin in 1942 began a change in our responsibilities toward acute suppuration in the nasal sinuses.

What is our status in 1955?

A discussion of rhinologic problems must include consideration of the physiologic reconstruction of the nasal pyramid. How important is this?

Members of the panel will express their ideas, and participants in this course will be urged to comment.

COURSE 110

Room 752 Periods Th-2, Th-3

MEYER S. FOX, M.D.
Milwaukee
and

SUBCOMMITTEE ON NOISE IN INDUSTRY

Noise

A two-period course—$4.00

Topics for Discussion

1. The physical aspects of noise, its measurement, and its effect upon man
2. The medical aspects of hearing loss due to noise exposure

3. The determination of hearing loss and hearing disability resulting from noise exposure
4. The medical-legal aspects of noise deafness
5. Hearing conservation programs in industry

This course has been planned for otolaryngologists who are actively engaged in hearing conservation programs in industry and for any others who are interested in the industrial noise problem. The presentation will consist of an informal panel discussion by members of the Subcommittee on Noise in Industry who have been very active in the field of industrial noise. Emphasis will be placed upon practical measures and a realistic approach to the problem. The presentation will be supplemented by charts, slides and tape recordings taken from actual industrial situations.

Those planning to attend this course who have questions regarding particular problems which they wish to have discussed should submit them by mail or in person before the conference begins. A question period will be provided, and an opportunity will also be afforded anyone in attendance who may wish to relate his experiences in meeting various problems in the field of industrial noise.

COURSE 111

Room 724 Periods W-2, W-3

COURSE 112

Room 724 Periods Th-1, Th-2

FRENCH K. HANSEL, M.D.
St. Louis

Allergy in Otolaryngology: Diagnosis and Treatment

A two-period course—$4.00

This two-hour course is being presented twice, as Course 111 on Wednesday and Course 112 on Thursday. **Please select course number according to day on which you wish to attend.**

This course is planned to inform the beginner as well as the advanced student in the principles of the practice of allergy in otolaryngology. In general, the discussion will be directed toward the supplies and extracts needed, the preparation of dilutions of extracts, the technique of testing, and the management of the various problems as presented by the patient.

FRED HARBERT, M.D.
(See Course 133, p. 304)

COURSE 113

Room 716 Periods T-1, T-2

COURSE 114

Room 716 Periods W-1, W-2

WILLIAM G. HARDY, Ph.D.
MIRIAM D. PAULS, Ph.D.
Baltimore
BY INVITATION

Clinical Audiometry for Young Children

A two-period course—$4.00

This two-hour course is being presented twice, as Course 113 on Tuesday and Course 114 on Wednesday. **Please select course number according to day on which you wish to attend.**

With infants and preschool children, particularly those with delayed speech, special techniques must be used to evaluate the hearing function and its relation to the child's development and behavior. Several techniques (employing calibrated toys and noise-makers, tuning forks, pure-tone and speech audiometry, masking, and the like) will be considered in detail. These range from what is useful in ordinary office practice to procedures involving special facilities.

Particular attention will be given to current "objective" procedures whereby a child is conditioned to respond to test sounds. Some details of management will be discussed, and there will be consideration of the relation between various causal factors and test findings and the development of language and speech in the child.

COURSE 115

Room 724 Periods T-2, T-3

ANDERSON C. HILDING, M.D.
Duluth, Minn.

Physiology of Hearing as Related to Hearing Loss and its Therapy

A two-period course—$4.00

Despite the fact that many theories of hearing have been advanced during the past 300 years, no one has yet demonstrated conclusively how we hear. The etiology and pathology of some of the commonest ear complaints are unknown.

In an attempt better to understand the internal ear, the normal anatomy of this structure, as it is presently understood, will be briefly described preparatory to discussing some intensive studies in dissection of the cochlea. These studies elucidate some of the characteristics and anatomic relations of the tectorial membrane and the motion of the cochlear partition. An attempt will be made to answer two questions which always present themselves whenever a theory of hearing is postulated: (1) How does stimulation of the hair cells actually take place? (2) How is the stimulation localized when the whole cochlea and everything within it is vibrating with forced vibration in response to sound?

The concepts which will be presented in explanation of these questions have immediate application in the pathology of perception deafness in general and in acoustic trauma in particular. The 4096 dip, characteristic of the initial perception type of deafness, may be explained on this basis. There are some preventive measures suggested by these findings.

COURSE 116

Room 715 Periods W-2, W-3

COURSE 117

Room 715 Periods Th-2, Th-3

CHEVALIER L. JACKSON, M.D.
Philadelphia

Cancer of the Larynx, Bronchi and Esophagus

A two-period course—$4.00

This two-hour course is being presented twice, as Course 116 on Wednesday and Course 117 on Thursday. **Please select course number according to day on which you wish to attend.**

Cancers of the larynx, bronchi and esophagus have common characteristics in gross appearance, in accessibility for biopsy, and in their clinical behavior. However, they differ with respect to the stage at which symptoms are noted, the nature of the symptoms themselves, and hence, the stage at which proper examination and biopsy can be accomplished. Anatomic factors play an important role in these similarities and these differences. The operability of cancer in the three locations, as well as its prognosis, is also widely different because of the same factors. From the simultaneous study of problems of diagnosis and management of these three kinds of cancer, some very important practical lessons are learned.

COURSE 118

Room 722 Periods W-2, W-3

VARAZTAD H. KAZANJIAN, M.D.
Boston

JOHN MARQUIS CONVERSE, M.D.
New York

EDGAR M. HOLMES, M.D.
Boston

Traumatic Injuries of the Face

A two-period course—$4.00

The symposium on early treatment of facial injuries, to be held during the first period, will cover (1) emergency measures consisting of the control of primary hemorrhage, traumatic shock, and other necessary first aid measures; (2) local examination of lacerations and fractures of the face plus general physical examination; and (3) early treatment of soft tissues, primary and late primary suturing of lacerations, and the immobilization of fractures, with special reference to fractures of the nasal, zygomatic and maxillary bones.

The second period will be utilized for a symposium on treatment of deformities of the face of traumatic origin, including discussion of (1) some general principles of reconstructive surgery of the face, and (2) repair of deformities involving soft tissues only, including (a) conspicuous scars without apparent loss

of tissue, (b) defects with definite loss of tissue requiring use of pedicle or skin grafts, (c) special areas such as the eyelids and eyebrows, and (d) stenosis of the nasal passages.

COURSE 119

Room 712 Periods Th-1, Th-2

JOHN R. LINDSAY, M.D.
Chicago

Vertigo: Differential Diagnosis and Treatment

A two-period course—$4.00

Vertigo caused by a disturbance of the inner ear or of the vestibular pathways may be differentiated from dizziness of other origins.

This course will include a detailed review of the essentials of an adequate history and of the routine ear, nose and throat and functional examinations. The interpretation of tests and their correlation with the history will be discussed.

A practical classification of vertigo will be presented with demonstration by case history of the various causes of vertigo within each group and the appropriate management.

COURSE 120

Room 712 Periods W-1, W-2

JAMES H. MAXWELL, M.D.
Ann Arbor, Mich.

Diseases of the Salivary Glands: Diagnosis and Treatment

A two-period course—$4.00

The subject matter of this course includes the differential diagnosis and treatment of some of the more common obstructive, inflammatory, neoplastic, and traumatic conditions which may involve the major salivary glands.

The technique and objectives of sialography will be discussed.

Chronic asymptomatic enlargements and recurrent nonsuppurative swellings of the salivary glands will be considered.

The medical and surgical treatment of acute and chronic suppurations in the major salivary glands will be presented.

A classification of parotid gland neoplasms will be given, and an attempt will be made to base the surgical treatment of these tumors on their histopathologic types.

The treatment of facial lacerations involving the parotid gland and the branches of the facial nerve will be dealt with briefly.

COURSE 121

Room 731 Periods T-1, T-2

COURSE 122

Room 726 Periods W-2, W-3

PHILIP E. MELTZER, M.D.
FRANK D. LATHROP, M.D.
MOSES H. LURIE, M.D.
Boston

Your Otological Office Problems: Panel Discussion

A two-period course—$4.00

This two-hour course is being presented twice, as Course 121 on Tuesday and Course 122 on Wednesday. **Please select course number according to day on which you wish to attend.**

In this course there will be a full and frank discussion by each member of the panel of his particular ideas in the management of the otological problems that will be presented. The discussion will be open to all present and will not be limited to the panel itself. The panel will not select the subjects but will discuss those topics pertaining to office management of otolaryngology presented by members of the class. This is a good opportunity to have a free and frank discussion of your problems as they present themselves in your office.

COURSE 123

Room 744 Periods T-1, T-2

COURSE 124

Room 744 Periods Th-2, Th-3

WERNER MUELLER, M.D.
Jamaica Plain, Mass.

ARTHUR L. JUERS, M.D.
Louisville, Ky.

SCOTT N. REGER, Ph.D.
Iowa City, Iowa

and

ALAN FELDMAN, Ph.D.
Jamaica Plain, Mass.
BY INVITATION

What the Otologist Should Know About Hearing Aids

A two-period course—$4.00

This two-hour course is being presented twice, as Course 123 on Tuesday and Course 124 on Thursday. **Please select course number according to day on which you wish to attend.**

This will be an informal question-and-answer symposium on hearing aid problems as they arise in daily otologic practice. The participants are invited to submit such questions as the following:

When does a hard-of-hearing patient need a hearing aid?

What are the comparative merits of bone and air conduction instruments?

What are the limitations of a hearing aid?

Which is the best hearing aid?

How should the patient go about getting ahearing aid?

What can the otologist do to combat high-pressure salesmanship?

COURSE 125

Room 777 Periods T-1, T-2

GEORGE F. REED, M.D.

and

BLAIR McCLOSKEY, M.D.
OREN BROWN, Ph.D.
BY INVITATION
Boston

Voice Therapy

A two-period course—$4.00

This panel will discuss various aspects of voice therapy, from both the medical and vocal aspects. Under the heading "medical aspects," we will be concerned with the various types of laryngeal disease which respond to voice therapy, and a discussion of the altered laryngeal physiology leading to these disorders. From the vocal viewpoint, the therapists will attempt to describe accurately, but simply, the techniques used in treatment of various types of laryngeal disorders. The statistical results of voice therapy in various types of disease, and tape recordings of patients' voices before and after therapy, will be presented.

COURSE 126

Room 777 Periods Th-2, Th-3

E. W. SCHELDRUP, M.D.
Iowa City, Iowa
BY INVITATION

Anatomy of the Neck in the Light of Modern Studies

A two-period course—$4.00

As a guide to the otolaryngologist called upon to do operative work in the neck for an ever-increasing variety of conditions which require surgical intervention, the standard textbook of anatomy leaves a great deal to be desired and cannot be relied upon to give an accurate account of the many structures encountered.

This course is designed to rectify this inadequacy and to present the anatomy of the neck in the light of modern studies. The material to be presented represents the results of personal investigations conducted on several hundred complete neck dissections during the past twenty years and incorporates the many published papers on special aspects of neck anatomy that have appeared in a widely scattered literature during the same period of time. Practical considerations will be the keynote throughout the presentation.

COURSE 127

Room 705 Periods T-2, T-3

COURSE 128

Room 705 Periods Th-2, Th-3

ALBERT P. SELTZER, M.D.
Philadelphia

A Typical Rhinoplasty

A two-period course—$4.00

This two-hour course will be presented twice, as Course 127 on Tuesday and Course 128 on Thursday. **Please select course number according to day on which you wish to attend.**

A typical rhinoplasty will be described. This presentation will include a discussion of the basic principles involved and will be illustrated step-by-step to the postsurgical result. Instruments, including the electric saw, will be presented in detail.

COURSE 129

Room 706 Periods T-1, T-2

COURSE 130

Room 706 Periods Th-1, Th-2

THEODORE E. WALSH, M.D.
St. Louis

What Can Be Done For Deafness

A two-period course—$4.00

This two-hour course is being presented twice, as Course 129 on Tuesday and as Course 130 on Thursday. **Please select course number according to day on which you wish to attend.**

The problems of relieving deafness, including the efficacy or failure of various forms of treatment and surgery, will be considered. The value of hearing aids and rehabilitation measures for cases which cannot be helped by medical or surgical means will be discussed. The apparent success of quackery will be explained. The members of the course are encouraged to submit questions and to join actively in an informal discussion of the subject.

COURSE 131

Room 713 Periods T-2, T-3

COURSE 132

Room 713 Periods W-2, W-3

WALTER P. WORK, M.D.
San Francisco

Techniques in Wide Field Laryngectomy

A two-period course—$4.00

This two-hour course is being presented twice, as Course 131 on Tuesday and as Course 132 on Wednesday. **Please select course number according to day on which you wish to attend.**

This course is designed primarily for those persons who are in training in otorhinolaryngology and for those who have shown some interest and aptitude in neck surgery.

The detailed step-by-step techniques in wide field laryngectomy will be emphasized by means of lantern slides and colored motion pictures. The approach to surgery of this region of the neck will be further stressed according to fascial planes and pertinent anatomic structures as worked out using fresh cadaver material, cross section studies, and techniques and procedures in the operating room. The low collar incision which the author uses will be illustrated.

COURSE 133

Room 732 Periods Th-2, Th-3

FRED HARBERT, M.D.
Philadelphia

Clinical Audiology

A two-period course—$4.00

This course is designed to emphasize the application of basic audiology and recent research to clinical testing. The indication for and interpretation of standard and special audiometric tests will be outlined, with special emphasis on masking and recruitment.

The diagnosis of various types of deafness will be illustrated by lantern slides showing results of tests on clinical cases. Methods of predicting and correlating speech reception loss from audiograms will be discussed.

INDIVIDUAL COURSES — OTOLARYNGOLOGY

COURSE 401

Room 726 Period T-1

LOUIS E. ADIN, JR., M.D.
Dallas

Approaches to the Mastoid Antrum

After the external surface of the temporal bone has been exposed using the postauricular incision or one of the several endaural incisions, the type of disease present should indicate the preferred approach to the mastoid antrum. The various transcortical and subcortical approaches to the mastoid antrum will be discussed.

COURSE 402

Room 713 Period T-1 or W-1

G. DONALD ALBERS, M.D.
Grand Rapids, Mich.

Branchial Anomalies: Fiction and Facts

Congenital anomalies continue to offer many challenges in diagnosis, proper evaluation of origin, and selection of most effective treatment. Classification of normal branchial derivatives according to respective arches and germ layers helps to explain the development of unusual anomalies. A color scheme for normal and abnormal derivatives of each arch has been adopted. Points of practical interest in the diagnosis and surgical repair of these anomalies will be presented. There will be a discussion of unusual cases submitted by those attending the course.

COURSE 403

Room 715 Period T-1 or W-1

LUCIAN W. ALEXANDER, M.D.
New Orleans

The Adenoid Problem

There is no operation in surgery so badly done in such a large percentage of cases as the adenoid operation. A discussion of the many techniques, failure in results, postoperative treatment to avoid middle ear infections, management of adenoid remnants, and case histories will be presented.

Kodachrome slides will be used.

COURSE 404

Room 726 Period W-1 or Th-1

VICTOR R. ALFARO, M.D.
Washington, D. C.

Office Design and Equipment

This course is designed to serve those who are planning to build or remodel their offices. Slides will be shown to outline the architecture of the office and to show the location, arrangement and size of rooms. Special emphasis will be given to the audiologic setup, including the equipment.

COURSE 405

Room 727 Period T-2 or W-2

FRANZ ALTMANN, M.D.
New York

Tympanoplasty: A New Approach to the Surgical Treatment of Chronic Middle Ear Infections

Antibiotics and the increased knowledge of the physiology of sound conduction have brought about a profound change in our attitude towards the operative treatment of chronic middle ear infections.

Although the elimination of the infection remains the main purpose, one should, whenever feasible, attempt to restore the greatest possible amount of hearing, provided that it can be done without jeopardizing the primary goal of the intervention.

There are three prerequisites for the success of restorative operations: satisfactory condition of the inner ear and nerve; proper function of the two windows; patency of the eustachian tube.

The operations aim at complete or partial reconstruction of the tympanic cavity and, as far as possible, of the ossicu-

COURSE 127

Room 705 Periods T-2, T-3

COURSE 128

Room 705 Periods Th-2, Th-3

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New York

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Although the elimination of the infection remains the main purpose, one should, whenever feasible, attempt to restore the greatest possible amount of hearing, provided that it can be done without jeopardizing the primary goal of the intervention.

There are three prerequisites for the success of restorative operations: satisfactory condition of the inner ear and nerve; proper function of the two windows; patency of the eustachian tube.

The operations aim at complete or partial reconstruction of the tympanic cavity and, as far as possible, of the ossicu-

lar chain. This is achieved through a kind of modified radical mastoidectomy and the use of skin grafts.

The procedure to be followed in the three situations most commonly encountered is discussed: cases with dry central perforations; cases with large marginal perforations and disease of the bony walls but without interruption of the ossicular chain; cases in which the drum and the two outer ossicles are absent or had to be removed because of extensive disease or after a previous radical mastoidectomy.

COURSE 406

Room 727 Period T-1

JACK R. ANDERSON, M.D.
New Orleans

Streamlined Allergy History for Otolaryngologists

History taking is the most important single aid in the diagnosis of allergy. Unfortunately, much time is required to take an adequate history. A method of history taking will be presented. This method will permit the busy otolaryngologist to cut to the heart of the problem.

COURSE 407

Room 727 Period T-3 or W-3

BARRY J. ANSON, Ph.D.
Chicago

THEODORE H. BAST, Ph.D.
Madison, Wis.
BY INVITATION

The Development and Adult Anatomy of the Ear and Temporal Bone with Reference to Some Problems of Otologic Surgery

Following an introductory account of pertinent features in general development, the adult anatomy (normal and pathologic) of selected structures and regions of the three portions of the ear will be presented.

For the external ear the following will be discussed: external acoustic meatus (and atresia thereof) and secondary tympanic membrane. For the middle ear, chief attention will be directed to the following: auditory ossicles, in relation to the technique of stapedial mobilization; facial nerve; facial canal; and chorda tympani. Concerning the applied anatomy of the internal ear, these structures or parts will be discussed: tympanic wall of the lateral semicircular canal, in relation to technique for surgical fenestration; vestibular fenestra (oval window), in relation to the genesis of otosclerotic bone; cochlear fenestra (round window) and secondary tympanic membrane; endolymphatic sac, utriculoendolymphatic "valve" and periotic (perilymphatic) duct in relation to labyrinthine hydrops.

COURSE 408

Room 727 Period W-1

WALTER P. ANTHONY, M.D.
Fort Worth, Texas

Atresias of the Ear Canal: Treatment and Prevention

The challenging problems of surgery for congenital atresia of the ear canal will be presented and discussed.

Techniques of correction of acquired atresia and a method of prevention of acquired atresia due to injuries will be presented. Helpful suggestions as to endaural surgical techniques and postoperative care with a view toward prevention of postoperative atresia will be discussed.

The subject matter will be adequately illustrated with kodachrome slides.

COURSE 409

Room 705 Period W-1 or Th-1

REA E. ASHLEY, M.D.
San Francisco

Respiratory Allergy Due to Dust and Other Perennial Inhalants: Therapy

The following points will be discussed:

1. Respiratory allergy as it affects our specialty: a quick review
2. Streamline methods of diagnosis
3. Differential diagnosis of allergy and infection
4. Management of acute allergic attacks: useful drugs
5. Hyposensitization: simple and applicable to office treatment
6. Pitfalls and results

COURSE 410

Room 705 Period T-1 or W-3

DANIEL C. BAKER, JR., M.D.
New York

Chronic Nonspecific Laryngitis

The normal functional anatomy of the larynx will be presented. This will be followed by a discussion of what takes place when the larynx is abused or misused. The various forms of chronic nonspecific laryngitis, including chronic hoarseness in children, screamer's nodules, changes that take place at puberty, vocal nodules in adults, polypoid thickening of the cords, pachydermia laryngitis, laryngitis sicca, contact ulcer of the larynx and dysphonia ventricularis, will be taken up in detail. The treatment and management of the patient will be stressed.

COURSE 411

Room 705 Period W-2

BERNARD M. BARRETT, M.D.
Pensacola, Fla.

Neuroautonomic Aspects of Headache Therapy

1. Necessity for a very thorough complete initial physical evaluation
2. Importance of having the patient aware of what you expect to accomplish
3. Therapy dictated by the psychogenic make-up of the patient
4. The necessity for developing a clinical awareness of subclinical endocrine dysfunction
5. Specific medication
6. Adjunctive medication
7. Drugs that interrupt neuroautonomic pathways

COURSE 412

Room 706 Period T-3 or W-3

OSCAR J. BECKER, M.D.
Chicago

Plastic Surgery for Protruding Ears

An original technique of correcting protruding ears is to be presented. This method has proved highly satisfactory in reproducing the normal contours of the auricle and in setting the ear back to the head at the proper angle.

The anatomy of the external ear, the etiology and pathology of protruding ears, and a historical survey of operative procedures will be included in the discussion.

COURSE 413

Room 711 Period T-1 or W-1

JULIUS W. BELL, M.D.
New York

Harelip Nose in the Adult: Surgical Management

Experiences convince us that the degree of deformity in the adult harelip is more often due to the primary surgery than to embryologic maldevelopment.

Good cosmesis in the infant demands wide stripping of soft parts, extensive V excisions and/or use of complicated geometric flaps—all of which are detrimental to growth potential, manifested later by nasal asymmetries, maxillary recession, malocclusion with retrusion of upper lip resulting in the "dish-face" appearance. Even minimal sacrifice of tissue represents considerable losses later in life. Minor technical errors are magnified in the resultant distortion of the face.

Near-perfect results are predicated on laying a foundation initially for future cosmetic procedures. Functional versus cosmetic advantages and disadvantages will be minutely discussed.

Banishment of hereditary stigma in the adult is of greater consequence mentally than correction of the deformity per se.

Procedures limited to the nasal pyramid fall far short of the goal. Manipulations of bone, cartilage and soft tissues fail to camouflage an underdeveloped maxilla completely. Building up the recessed nose improves the nose but exaggerates the associated dish-face.

Procedural Sequence:

1. Correct scaphoid facies, restoring nasal foundation
2. Readjust nasal structures
3. Reconstruct lip for facial harmony

Surgical procedures to accomplish the desired results will be discussed.

COURSE 414

Room 710 Period T-3

RICHARD J. BELLUCCI, M.D.
New York

Submucous Resection of the Nasal Septum

Surgical anatomy of the nasal septum and framework of the external nose will be reviewed.

A simplified technique for the surgical correction of the deviated nasal septum, as taught at the Manhattan Eye, Ear, and Throat Hospital, will be presented.

Surgical management of the anterior deviated nasal septum with obstruction of the nares will be presented.

The relative importance of the septum in plastic surgery of the nose will be discussed.

COURSE 415

Room 710 Period Th-3

RICHARD J. BELLUCCI, M.D.
New York

Surgery of the Stapes and Oval Window: Basic Considerations

The surgically important anatomic characteristics of the tympanic membrane, stapes, oval window, and other structures encountered in the mobilization of the stapes operation will be discussed.

The technical considerations involved in performing the surgery of the stapes and oval window will be discussed.

An evaluation of the advantages and limitations of this surgery will be presented.

COURSE 416

Room 711 Period T-3

KENNETH C. BRANDENBURG, M.D.
Long Beach, Calif.

Understanding the Problem Patient

Symptoms such as headache, dizziness, tinnitus, aphonia and dysphagia are often difficult, if not impossible, to explain or treat on an organic basis. Other conditions, such as vasomotor rhinitis and the allergies, in which emotions may play an important role, may baffle and humiliate the doctor unless he has some understanding of psychodynamics. Clinical case material will be used to illustrate the ideas advanced, and the course will be kept on as practical a basis as possible.

COURSE 417

Room 711 Period T-2 or Th-2

FRIEDRICH S. BRODNITZ, M.D.
New York

The Actor and Singer as Patients of the Otolaryngologist

Singers and actors form a group of growing importance in the practice of the laryngologist. To handle these patients well requires an understanding of the techniques involved in the professional use of the voice and of the medical, occupational and psychological problems of the artist.

A review of this field will be presented by dealing with the following topics of practical importance:

1. Check-up examination of the vocal organs
2. Technical problems of professional singing and speaking
3. Infection in the vocal organs of the artist
4. Evaluation of local treatments
5. Handling of emergencies
6. Judging the fitness to perform
7. Psychology of the artist-patient
8. Differential diagnosis of functional voice disturbances

COURSE 418

Room 712 Period T-3 or W-3

NORTON CANFIELD, M.D.
New Haven, Conn.

Speech Audiometry for the Practicing Otologist

The advantages of speech audiometry, as aided by new electronic instruments, will be compared to those of pure tone audiometry as a practical tool for determining auditory acuity.

The techniques used in speech audiometry will be discussed.

The value of the speech audiometer in testing hearing aids will be stressed, and cases in which it has proved its worth will be cited.

Use of the speech audiometer in testing speech reception and auditory discrimination will be explained. The psychological insight concerning the patient gained when the otologist does the testing himself will be pointed out.

The speech audiometer has proved even more successful in testing the hearing of children, and methods for testing and observing the reactions of young children to speech sounds will be described.

Finally, mention will be made of the advantages of this instrument in tests for malingering.

COURSE 419

Room 712 Period T-1 or Th-3

CLAUDE C. CODY, III, M.D.
Houston, Texas

Eustachian Tube:
Management of Pathologic Conditions

Management of pathologic conditions of the eustachian tube is a subject that confronts every practicing otolaryngologist. The youngest to the oldest physician sees countless numbers of patients with complaints referable to the eustachian tubes. Unfortunately, many symptoms are erroneously attributed to the eustachian tube when this is not the real seat of trouble.

A working classification of lesions of the eustachian tube, suppurative and nonsuppurative, in both the young and old, will be offered. Kodachrome slides will be shown demonstrating the eardrums of children which show various stages of retraction and various stages of effusion. The relationship of such conditions to hearing will be stressed. Management, including adenoidectomy, myringotomy with suction, inflation, and the possible use of radium and roentgen therapy, will be covered. Our changing concepts regarding suppurative otitis media and serous otitis media and their relationship to hearing will be developed.

Serous otitis media and adhesive otitis media, and the problems they present in adult patients, will be dealt with along with various methods of management.

Vertigo and its possible relation to tubal obstruction will be reviewed. Especial emphasis will be placed on office management of tubal obstruction. The methods for its diagnosis and treatment will be thoroughly covered. A short motion picture on equipment and technique used in tubal obstruction in routine office practice will be shown.

COURSE 420

Room 711 Period W-2

DONALD A. CORGILL, M.D.
Dallas

Laryngopharyngectomy and Bilateral Neck Dissection

Patients when seen by the laryngologist for the first time are often suffering from carcinomatous disease in its advanced stages, with local metastasis already present. A one-stage surgical procedure encompassing all the malignant tissue, together with methods of primary or secondary reconstruction, immediate and long-term postoperative results, and complications and methods of dealing with them, will be described with the aid of colored slides and colored motion pictures of the surgery and of the complications. A time sequence has been followed, as the complications resolve. Results of surgery over a five-year period will be presented.

COURSE 421

Room 710 Period Th-2

JAMES B. COSTEN, M.D.
St. Louis

Mandibular Joint Syndrome:
Differential Diagnosis and Treatment

Reassessment of mandibular joint symptoms is necessary at intervals in order to evaluate types of treatment and differential diagnosis. Recognition of this group of pain reflexes as incidental to abnormal function of the temporomandibular joint is not difficult for the otolaryngologist, dentist, or neurosurgeon. Screening out cases which do not belong to the group is more difficult, and if not done with care, starts a long course of misapplied effort, dental failures, and inconclusive results.

The routine examination needed to confirm a diagnosis embraces the following:

1. Local findings: varieties of malocclusion, loss of teeth, tenderness of man-

dibular joint to palpation, crepitus within the joints, and trismus

2. Roentgenography to show density changes within the joint, abnormal condylar positions and space relations, and erosion of bony landmarks

3. Search for regional conditions which may supply basis for trismus or deranged jaw action

4. Recognition of sources of unfavorable prognosis, notably masseter tremor

5. Proper regard for symptoms of sinus disease, classical or primary neuralgias, and tumors, with respect to which the syndrome was originally described

6. Clear definition of the conversion neuroses, in an effort to prevent useless treatment

Treatment may be classified as

a. Restoration of occlusal deficiencies by dental correction

b. Elastic splinting of jaws, and myotonic exercises

c. Direct treatment of temporomandibular joints by injections or surgery

d. Control of masseter tremor and its psychogenic emotional background

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COURSE 422

Room 711 **Period Th-3**

WILLIAM H. CRADDOCK, M.D.
Cincinnati

Hay Fever: Diagnosis and Treatment

Types of hay fever and their symptomatology will be discussed. Diagnostic skin testing (various methods) and titration for determining the degree of sensitivity will be considered. The effect of environmental and psychological factors on hay fever will also be presented. Preparation of dilutions from pollen extracts and their standardization will be presented as well as perennial, preseasonal and coseasonal treatment. Also included will be a discussion of medical and dietary management.

COURSE 423

Room 715 **Period T-3**

EDWARD H. CRANE, JR., M.D.
Inglewood, Calif.

Helpful Hints for Otolaryngologists

Every otolaryngologist in his own practice develops techniques which are successful for him and which may be helpful to his collaegues. This presentation offers hints in otolaryngologic practice which may be helpful.

a. Relationship of odor to pathogen and subsequent treatment in otitis externa
   1. Demonstration of odors
   2. Concept of cure in otitis externa
b. Management of the "nose drops" patient
c. Neurosis
d. Drugs helpful in common but difficult ear, nose and throat problems: rhinitis medicamentosus, histamine cephalalgia, severe nasal allergy
   1. Contraindications commonly ignored
   2. Sensitivity
   3. Use in inhalation therapy
   4. Use in local therapy
   5. Cost
e. Voice problems
f. Anesthesia: rectal pentathol
g. Surgical angles
h. Endoscopy

COURSE 424

Room 715 Period T-2

LAWRENCE S. CRISPELL, M.D.
Joplin, Mo.

Allergy in Children: Diagnosis and Treatment

An easy practical treatment for the pediatric allergy patient from the otolaryngologic aspect will be presented in this course. Emphasis will be placed on the diagnosis of allergy in the child, and treatment, particularly as related to recurring colds, sinusitis, tonsillectomy, adenoidectomy, deafness and bronchitis, will be discussed.

COURSE 425

Room 721 Period T-1

JACK DAVIES, M.D.
St. Louis
BY INVITATION

The Development of the Pharynx in Man as a Basis for Rational Surgery

The development of the pharyngeal area in the human embryo will be discussed with special reference to the pouches and their derivatives (thymus, parathyroids, ultimobranchial body) and to the cervical sinus. Special emphasis will be placed on the relationships of these structures to the vascular, skeletal and nervous derivatives of the arches concerned. In this way a foundation will be laid for the understanding of normal anatomic relationships in the adult and of abnormal persistence of embryonic structures, for example, cervical cysts and other remnants in the neck, interpretation of which is difficult.

The development of the thyroid will be described, with emphasis on its essential relationship to the second (hyoid) and succeeding skeletal arch derivatives. An understanding of these developmental events provides a rational basis for the surgical treatment of thyroglossal cyst.

COURSE 426

Room 721 Period W-1 or Th-3

FRANCIS W. DAVISON, M.D.
Danville, Pa.

Ethmoid Sinus Disease: Medical and Surgical Treatment

The treatment of ethmoid sinus disease is one of the most controversial subjects in the field of rhinology. In an effort to clarify his own views, the speaker has analyzed the case histories of one hundred patients with various types of ethmoid sinus disease who were treated and whose cases were then followed for at least one year thereafter.

The discussion will include the indications for use of therapy for allergy, antibiotics, vaccines, hormones and surgical procedures.

COURSE 427

Room 716 Period T-3

LEE W. DEAN, JR., M.D.
Clayton, Mo.

Practical Neuro-otolaryngology

A review of some of the neurological conditions that confront the otolaryngologist. Emphasis will be placed on aspects of anatomy, diagnosis and treatment as found more commonly only in the neurological literature.

The course will cover the cranial nuclei and tracts involved in such conditions as facial paralysis, the cerebellar syndrome, cerebellopontine angle lesions, multiple sclerosis, trigeminal neuralgia, and lesions producing paralysis of the pharynx, larynx, tongue and esophagus.

COURSE 428

Room 722 Period T-3

EUGENE L. DERLACKI, M.D.
Chicago

Conductive Deafness: Office Management

After the diagnosis of a conductive hearing impairment has been made, proper office management includes all of the therapeutic and rehabilitative medical measures in our armamentarium of office procedure as well as the proper selection of cases for various surgical procedures available for the preservation or restoration of practical hearing.

The diagnosis and treatment of chronic secretory otitis media and chronic suppurative otitis media with central perforations, as well as the use of various prostheses and our technique of perforation repair, will be included among the discussions and demonstrations.

COURSE 429

Room 722 Period W-1
or or
Room 715 Period Th-1

DAVID D. DEWEESE, M.D.
Portland, Ore.

The Problem of the Dizzy Patient

This course will include a discussion of the factors to be taken into consideration in making a differential diagnosis of

the patient who comes to the physician with the complaint of "dizziness." The importance of certain facets of history taking will be stressed. There will be a discussion of nystagmus and of the value and interpretation of labyrinthine tests. A workable outline of those diseases and conditions which must be taken into consideration when considering the symptom of dizziness will be presented. An attempt will be made to keep in mind those practical points which are of value in differential diagnosis of this symptom in everyday practice. Treatment of certain types of dizziness and vertigo will be discussed.

COURSE 430

Room 711 Period Th-1

DAVID A. DOLOWITZ, M.D.
Salt Lake City

Use of Adrenal Steroids as Anti-inflammatory Agents

Inflammation will be considered as a nonspecific reaction of the organism to injury.

Regardless of the site affected, it is a reaction of the interstital connective tissue. Degree of inflammation depends on the nature and amount of irritating substance.

Investigation indicates that certain adrenocortical steroids tend to decrease inflammatory response to a wide variety of stimuli. They act on inflammation rather than the inducing agent. Inflammation is reduced in dose-response fashion. Various steroids have different anti-inflammatory potencies. The steroids act locally.

Clinical application of these principles will be discussed and demonstrated.

COURSE 431

Room 728 Period W-3 or Th-3

JOHN B. ERICH, M.D.
Rochester, Minn.

Fractures of the Facial Bones

This course will deal with fractures involving the mandible, maxilla, malar and nasal bones. The methods of treatment which have been found most effective at the Mayo Clinic will be stressed, and classifications which facilitate the management of some of these traumatic injuries will be discussed.

COURSE 432

Room 716 Period W-3

J. BROWN FARRIOR, M.D.
Tampa, Fla.

Laryngectomy, Neck Resection and Cancer of the Larynx

This course will define the indications for and technique of the combined neck resection and laryngectomy. The detailed steps which facilitate technique will be described in detail.

The course will be illustrated by kodachrome slides of anatomic drawings, operations, and selected cases to illustrate points in surgical judgment.

COURSE 433

Room 716 Period Th-3

J. BROWN FARRIOR, M.D.
Tampa, Fla.

The Fenestration Operation: Surgical Technique and Causes of Failure

Those steps in surgical technique which ensure maximum and lasting restoration of hearing through the fenestration operation will be described in detail. Although greatest stress will be placed upon the microscopic perfection of the window and the flap, the technique from the moment the incision is made until the skin graft has been placed will be described.

COURSE 434

Room 728 Period T-3

CHARLES F. FERGUSON, M.D.
Boston

Pediatric Bronchography: Its Present Status

Indications for bronchography in infants and children will be discussed, and many representative bronchograms will be demonstrated. These illustrate various causes of tracheal and/or bronchial com-

pression, such as anomalies of the aortic arch and great vessels (double aortic arch, right aortic arch with tight left ligamentum, anomalous innominate or carotid vessels), agenesis of the lung, tracheoesophageal fistula, and congenital anomalies of the tracheobronchial tree. Causes of bronchiectasis will be outlined, including unresolved pneumonia, postpertussis, foreign bodies, mucoviscidosis, and congenital anomalies. Extralaryngeal causes of "congenital stridor" will be discussed. A brief resume of our technique used at the Children's Medical Center in Boston will be given.

COURSE 436

Room 740 Period T-2

FRANK S. FORMAN, M.D.
Colorado Springs

Binaural Hearing: Its Profound Importance

Since practically all hearing testing has been unilateral from the standpoint of diagnosis, largely using the threshold for pure tone, the importance of binaural hearing has been neglected. The literature has not stressed the importance of triangulation in hearing. During this course it will be shown that the restoration of bilateral hearing, surgically as well as with hearing aids, is of vast importance in the patient's ability to hear, particularly where there is a background of intelligible noise.

One of the chief complaints of the unilaterally deafened person is the inability to hear in crowds, which is due to the lack of function of triangulation in hearing. It will also be shown that although discrimination scores in the presence of a background of noise may be improved, this does not represent a true index of the triangulation of hearing. Demonstration will be made of the significance of transient noise in lateralization of hearing as compared with pure tone. Results of bilateral fenestration, bilateral stapes mobilization and bilateral hearing aids in the restoration of binaural hearing will be shown and discussed.

Slides showing test equipment used in experimental work in triangulation of hearing will be shown, and the results of bilateral restoration of hearing will be demonstrated.

COURSE 437

Room 740 Period T-3

EDMUND P. FOWLER, JR., M.D.
New York

Facial Paralysis and Tics

This course will include discussion of the following points:

1. Etiology of neuritis of the seventh nerve
2. Bell's palsy
3. Traumatic injuries of the facial nerve, including those instant to fracture of the temporal bone
4. Tumor invasion

Special attention will be paid to the pathologic changes incident to repair and methods of decompressing and grafting the nerve. There will also be a discussion of the medical management of Bell's palsy, postrecovery associated movements, and involuntary twitches or tics.

COURSE 438

Room 722 Period Th-1

E. KING GILL, M.D.
Corpus Christi, Texas

Mycotic Infections in Otolaryngology

The importance of mycotic infections in the field of otolaryngology is receiving greater emphasis. These infections are more common than would be indicated by the present clinical literature. Confusion exists regarding the classification and identification of various mycotic infections. A sound working classification for the otolaryngologist will be presented. The signs and symptoms along with the prominent clinical features that occur in each disease will be discussed, particularly those affecting the external ear. General and specific therapeutic measures will be given, including use of the more modern drugs. Practical office procedures will be stressed.

COURSE 439

Room 728 Period W-2

ARAM GLORIG, M.D.
Los Angeles

The Otolaryngologist and Hearing Aid Selection

The purpose of the course will be to answer many of the questions surrounding hearing aid selection, especially those which the "hearing loss patient" directs to the physician when he is informed that a hearing aid will be necessary.

COURSE 440

Room 728 Period Th-1

ARAM GLORIG, M.D.
Los Angeles

The Otologist and the Noise Problem

The subject of noise in industry has raised many questions which are new to the otologist. The purpose of this course is to review the problem and to present the latest information regarding the relations of hearing loss to noise exposure and its medicolegal implications. There is a great need for standardization of hearing conservation programs in industry. This course is designed to assist in promoting such standardization among the otolaryngologists.

COURSE 441

Room 711 Period W-3

JOSEPH L. GOLDMAN, M.D.
New York

Vasomotor Rhinitis: Diagnosis and Treatment

This course will deal with the common, nonatopic, hypersensitive type of rhinitis. The physiologic basis for this condition will be explained along lines which will further a better understanding of rational management. Diagnostic features of vasomotor rhinitis will be presented, stressing newer bacteriologic and cytologic criteria. Therapy will be discussed, pointing out indications for drugs, submucous electrocoagulation, and surgery.

COURSE 442

Room 706 Period Th-3

JOSEPH L. GOLDMAN, M.D.
New York

Diseases of the Maxillary Sinus: Management

This course will encompass the diseases of the maxillary sinus due to vasomotor reaction, infection and neoplasm. Methods required for specific and differential diagnosis will be discussed. Consideration will be given to the role of sinus lavage, drug and antibiotic therapy, and vaccine immunization, as well as to surgical intervention, in the treatment of vasomotor and infectious maxillary sinusitis. The various surgical methods for the treatment of neoplasms of the maxillary sinus will be presented.

COURSE 443

Room 710 Period Th-1

VICTOR GOODHILL, M.D.
Los Angeles

The Management of Tinnitus

The patient with tinnitus is frequently a distressing problem to the otologist. The multiple organic causes of tinnitus and the complex psychosomatic patterns encountered make it impossible for any one approach or therapy to alleviate this condition.

A broad psychodynamic approach and certain limited specific therapeutic measures will do much to clarify this confused otologic issue.

A systematic method of analysis is presented as a guide to diagnosis and management of the patient with tinnitus.

COURSE 444

Room 740 Period W-3 or Th-3

ARTHUR J. GORNEY, M.D.
Boston

Esophageal Strictures: Prevention and Treatment

The proper use of bougies in the prevention and treatment of esophageal

strictures is one phase of otolaryngological practice which is very often neglected.

The early treatment of burns of the esophagus and the prevention of stricture formation in such cases by the proper use of mercury-filled bougies will be taken up. The management of cases in which stricture has already formed after the ingestion of lye or other caustic substances will also be discussed in detail.

The pathogenesis, prevention, and treatment of strictures of the esophagus, including those due to causes other than burns, such as that found in peptic esophagitis, and some other interesting and unusual conditions, will also be discussed. Emergency treatment and follow-up management, with particular stress placed on the use of various types of esophageal bougies, will be presented.

Slides, pathologic specimens, pictures of the bougies in use, and the bougies themselves will be shown.

COURSE 445

Room 734 Period W-3

RICHARD G. HAMILTON, M.D.
Pittsburgh

Allergic Reactions to Drugs and Antibiotics in Otolaryngology

This presentation will cover briefly the physiology and pharmacology of certain drugs and antibiotics used in the practice of otolaryngology. The allergic reactions to these agents will be discussed.

Personal experience with severe allergic reactions to drugs and the antibiotics, and the prevention and the treatment of these reactions, will be presented. The proper use of drugs and antibiotics in otolaryngology will be considered.

Group discussion will be encouraged.

COURSE 446

Room 734 Period Th-3

JOSEPH W. HAMPSEY, M.D.
Pittsburgh

Sinusitis in Children

While the clinical picture of sinusitis in children does not differ essentially from that in adults, the inability of the child to describe his symptoms accurately necessitates a greater reliance upon objective findings. The appearance of the nasal mucosa and the microscopic study of nasal and sinus secretions are the principal means of diagnosing and following these cases. Roentgenograms in these cases are less reliable than in those of adults because of the thickness of the bones of the face.

The main problem is that of chronic sinusitis. Since allergy is usually a prominent factor in the chronic sinusitis of children, it must be given adequate consideration in the management of this disease. The proper use of antibiotics, conservative treatment of the nose and sinuses, and rational vaccine therapy are also very helpful in relieving these young patients. A re-evaluation of the tonsil and adenoid problem may be desirable in the light of these advances.

COURSE 447

Room 740 Period T-1
or or
Room 732 Period W-2

IRVIN HANTMAN, M.D.
Washington, D. C.

Newer Aids in the Teaching of Otology

This course will consist of demonstration, explanation and description of some of the teaching aids which have been devised by the author over a period of years to facilitate and dramatize teaching of diseases of the middle ear.

An "ear manikin" will be described in which the auricle, external canal and drum membrane, both of the adult and of the child, are closely simulated, by the use of flexible moulages and organic membranes made of sheep's intestines. With the aid of the manikin, myringotomies and aspirations of the middle ear can be taught, the student actually making the incision and withdrawing fluid as in life. Techniques of attic irrigation and treatment of perforations can also be taught.

A new setup for group study of middle ear diseases will also be presented. Individual ear moulages are mounted against lighted backgrounds, against which individual colored photographs of eardrums can be put so that each student may (by

using the otoscope) view the various conditions of the drumhead personally while the instructor, using copies of the same photographs and projecting them on a screen, explains the clinical condition present.

An apparatus also will be shown with which the teacher and the student can view the tympanic membrane at the same time.

This course should be of interest not only to all teachers but to all otolaryngologists, particularly those who wish to teach not only medical students but also interns and residents in general hospitals, residents in ENT, general practitioners and pediatricians.

COURSE 449

Room 728 Period T-1 or W-1

HERBERT H. HARRIS, M.D.
Houston, Texas

Nasal Polypi: Medical and Surgical Aspects in Management

Nasal polypi create a problem for all otolaryngologists, and it is one for which the solution is not always easy. Although nasal polypi are in many cases a product of allergy, it is not allergy per se, but infection, that is the causative factor in this recurring problem.

Some features of the anatomy and lymphatic drainage of the nose will be discussed. The value of the corticosteroids in treatment, the use of radium, and finally the value of surgery, particularly in relation to the maxillary and ethmoid sinuses, will be discussed.

COURSE 450

Room 728 Period T-2 or Th-2

DAVID HIGBEE, M.D.
San Diego

Office Practice

The methods which have been most successful in acquiring and holding a clientele will be discussed. They begin with the first contact between the patient and the doctor's office.

Diseases of the ear, nose and throat will be discussed separately insofar as possible. Procedures which constitute a thorough examination of each area will be described. Deviations from ideal conditions exist in every patient. Effective treatment will depend upon how well we evaluate the history and relate it to physical findings.

Refinements in examination and treatment of conditions most frequently encountered and procedures necessary in more obscure cases will be discussed.

A gross discrepancy between the history and the physical findings suggests the possibility of an underlying emotional state. Many symptoms result from stress and frustration. The majority of them can be detected and treated successfully if we have a genuine and sympathetic approach which invites confidence.

COURSE 451

Room 724 Period W-1 or Th-3

JEROME A. HILGER, M.D.
St. Paul, Minn.

The Injured Malar Bone

Injury to the malar bone is exceedingly common. It is almost routinely associated with fracture of the abutting maxilla. It is frequently accompanied also by injury to the nasal complex or to the mandible. The fracture may involve only the arch; it may involve all four of the "weak" points of attachment; or it may actually involve extensive comminution of the body of the bone itself. Reparative methods suitable to the different types of injury constitute the material for this discussion.

COURSE 452

Room 781 Period W-1

RAYMOND L. HILSINGER, M.D.
Cincinnati

Vascular Headaches

In the far past all complicated headaches were considered migraine. In the more recent past, since the work of Horton, Wolff and Friedman, much has been done to classify the various types of vascular headaches. However, the pendulum, as usual, has swung too far to the other

side and now there is far too much classification. If this continues, each little cranial artery will have its own headache syndrome.

In this course a very simple classification of vascular headaches will be proposed, and general diagnosis and treatment of both vasodilating and vasospastic headaches will be discussed. The symptomatic and prophylactic aspects of treatment will be considered.

COURSE 453

Room 724 Period T-1

PAUL H. HOLINGER, M.D.
KENNETH C. JOHNSTON, M.D.
Chicago

Bronchoscopic Techniques

Improvements in bronchoscopic techniques have contributed substantially to the advances in medical and surgical management of diseases of the chest. Various types of local and general anesthesia for bronchoscopy will be discussed, with indication of the advantages and disadvantages of each. New instruments with improved lighting and optical systems will be shown. Special equipment and procedures for bronchoscopy in infants will be thoroughly considered. Biopsy techniques, endoscopic resection techniques and other special endoscopic procedures will be illustrated. The various ways in which bronchography may be done will be described.

COURSE 454

Room 734 Period Th-1

PAUL H. HOLINGER, M.D.
KENNETH C. JOHNSTON, M.D.
Chicago

Pediatric Laryngology

This course will begin with a brief consideration of clinical aspects of the anatomy and physiology of the infant larynx. Next the roentgenographic and laryngoscopic methods of examining the infant larynx will be discussed. Congenital anomalies, birth injuries of the larynx, and a review of problems of hoarseness in the infant and child will be illustrated by endoscopic motion pictures. Laryngeal obstruction and tracheotomy in the infant will be considered in the discussion of acquired lesions such as laryngotracheobronchitis.

COURSE 455

Room 721 Period Th-1

GORDON D. HOOPLE, M.D.
Syracuse, N. Y.

Pitfalls in Office Audiometry

There is increased recognition of the fact that a mere twisting of an audiometer dial may not yield an accurate appraisal of hearing acuity. Even appropriate management of the audiometer may fail to produce satisfactory results. Some of the considerations will be mentioned. These will include: (1) the testing room, (2) instructions to the patients, (3) the tests used, (4) the instruments employed, and (5) inconsistency of testing results.

Illustrative cases will be presented. Conference procedures with the patient after testing will be discussed.

COURSE 456

Room 731 Period T-3

HOWARD P. HOUSE, M.D.
Los Angeles

Surgery of the Chronically Discharging Ear

The indications for surgical intervention and the operation of choice in the chronically discharging ear will be presented.

A detailed description of the surgical technique used in both the modified and the radical mastoid operation will be given. The necessity for a definite detailed pattern of surgical approach in these cases will be emphasized. Many points of practical value in preventing undue surgical complications in mastoid surgery will be presented. The postoperative management of these cases will be reviewed.

This course will be fully illustrated by slides and kodachrome motion pictures.

COURSE 457

Room 731 Period W-1 or Th-1

HOWARD P. HOUSE, M.D.
Los Angeles

Stapes Mobilization Procedure: Personal Experiences

A brief history of stapes mobilization will be presented. A general discussion of the indications, techniques and results will be given.

The course will be illustrated by lantern slides and a motion picture on techniques.

COURSE 458

Room 732 Period T-1

WILLIAM C. HUFFMAN, M.D.
Iowa City, Iowa

Treatment of Facial Fractures

The management of complicated facial fractures is often best accomplished by direct exposure and transosseous wiring. Treatment in this fashion usually avoids the use of external appliances and internal pins. The technique of treating various types of fractures is illustrated.

COURSE 459

Room 732 Period W-1

WILLIAM C. HUFFMAN, M.D.
Iowa City, Iowa

Acute Injuries of the Soft Tissues of the Face: Management

Three factors are of prime importance in determining the results of the treatment of facial lacerations:

1. Early repair. The lacerated tissues should be meticulously approximated as soon as the patient's general condition permits. Even after severe injuries the patient can nearly always be subjected to facial repairs in a matter of hours rather than of days or weeks.

2. Minimal debridement. Excision of one or two millimeters of the margins of a wound serves to remove gross foreign material and a large proportion of the contaminating bacteria; it also furnishes a wound with sharp edges so that more precise approximation can be accomplished. Debridement should be only minimal; even tags of tissue that at first examination appear to have little chance of survival will nearly always heal well due to the rich blood supply to the face.

3. Closure without tension. Skin sutures should not be depended upon to hold the wound together. This should be accomplished by the careful placing of one or more layers of sutures in the tissues beneath the skin surface. In addition, wounds involving the full thickness of the face demand that close attention be given to repair of the lacerated mucosa.

The factors enumerated will do much to make the difference between a satisfactory result and one that will require extensive further surgery. A few poor results are enough to demonstrate the inadvisability of rough handling, coarse sutures and stretching of tissues.

COURSE 460

Room 732 Period W-3 or Th-1

LELAND G. HUNNICUTT, M.D.
Pasadena, Calif.

The Chronically Congested Nose

The chronically congested nose is more common in highly civilized peoples. Part of the treatment is to eliminate some of the conditions and medications that go along with civilization.

The congestion may be from emotional states, fatigue, environment, local and general disease, and improper care of the nose. Experimental studies will be shown on the proper and improper care of the nose. Most chronically congested noses can be helped by the methods outlined.

COURSE 461

Room 733 Period T-3 or W-3

EDLEY H. JONES, M.D.
Vicksburg, Miss.

Allergic Rhinitis: Diagnosis and Treatment

Patients with allergic rhinitis are best treated by an otolaryngologist who is qualified to make allergic studies. Any

interested otolaryngologist can qualify himself to do this work. The necessary equipment is not expensive and the procedures are not difficult, but they do require time and study.

This course will discuss the diagnosis and treatment of these cases—pertinent points in history taking, clinical examination, laboratory studies, skin tests, elimination diets and desensitization therapy.

COURSE 462

Room 706 Period W-1

LEWIS W. JORDAN, M.D.
Portland, Ore.

Nasal Fractures: Management by the Rhinoplastic Approach

Recent advances in rhinoplasty by otolaryngologists for the improvement of nasal function have directed attention to more precise methods for handling of nasal fractures. The proper management of this condition will prevent much later disability.

This course will present a practical approach to the management of the fractured nose. It will include (1) methods of making an early diagnosis; (2) use of local anesthesia; (3) discussion of pathology; (4) correction of displaced bony fragments; (5) reduction of septal fractures; (6) open reduction in cases which cannot be corrected by closed methods; (7) application of external and internal dressings; (8) discussion of nasal injuries in children; and (9) discussion of old fractures.

COURSE 463

Room 710 Period W-3

ARTHUR L. JUERS, M.D.
Louisville, Ky.

Preservation of Hearing in Surgery for Chronic Ear Disease

Preservation or restoration of hearing in surgery for chronic attic and middle ear disease is dependent on a comprehensive understanding of the following aspects of the problem:

1. Genesis of attic perforation with or without cholesteatoma (cholesteatosis)
2. Indications for surgery
3. Interpretation of pathologic condition
4. Reconstruction of a new hearing mechanism when a functioning ossicular chain needs to be removed (myringostapediopexy)

Kodachrome slides of wax models will be used to show salient features of surgical technique. Illustrative audiograms will be discussed in relation to the mechanics of sound construction before and after surgery.

COURSE 464

Room 740 Period W-2 or Th-2

KELVIN A. KASPER, M.D.
Philadelphia

Dacryocystorhinostomy

Following the classical Mosher-Toti technique, with some variation, an attempt will be made to demonstrate the simplicity and safety of this combined external and intranasal operation on the lacrimal sac in a bloodless field, with all structures outlined and easily identified under direct vision. The regional anatomy, the various structures encountered, and the limits of safety during the operation will all be demonstrated. Preoperative preparation, exact technique of local anesthesia and postoperative care will also be outlined.

Anatomical material, drawings and motion pictures will be employed.

COURSE 465

Room 733 Period T-1

W. FRANKLIN KEIM, JR., M.D.
Newark, N. J.

Management of Parotid Tumors

Discussion of the types of neoplasms encountered in the parotid gland, with kodachrome slides to illustrate surgical attack on these tumors, including exposure of the facial nerve. Special attention will be given to the treatment of recur-

rent mixed tumors in which previous treatment by radiation or surgery has failed.

COURSE 466

Room 733 Period T-2

GEORGE KELEMEN, M.D.
Boston

Stapes Mobilization

Demonstration of (a) the different mechanisms and degrees of stapes fixation in otosclerosis, and (b) occlusion of the oval and round windows by products of organizing processes.

While otosclerosis, except on rarest occasions, attacks only the oval window, residua of imflammatory processes cause damage to both windows. The numerous possible mechanisms will be discussed from the viewpoint of surgical intervention and rehabilitation.

COURSE 467

Room 733 Period W-1

GEORGE KELEMEN, M.D.
Boston

Congenital Deafness

Histopathologic observations in the embryonic and the perinatal period, in cases of congenital syphilis, maternal rubella, maternal diabetes, and maternal poliomyelitis in conjunction with attempts to reproduce experimentally the embryonic damage, have shown that vascular lesions are predominant. They are the basis of (1) developmental arrest through malnutrition, (2) destruction of the sensory end organs, and (3) osteomyelitis, followed by repair with possible compression or obliteration of the endolymphatic spaces.

COURSE 468

Room 732 Period T-2

JOSEPH I. KEMLER, M.D.
Baltimore

Bilateral Thyrotomy for Carcinoma of the Larynx

The reason for this operation will be given. The types of carcinoma of the larynx for which this operation is suitable will be discussed. The technique will be described in full detail with explanation of the various steps. Mirror laryngoscopy with biopsy and diagnosis by the indirect method will be demonstrated.

This presentation will be illustrated by colored slides, and a colored motion picture of the operation will be shown. The analysis and results will be discussed.

COURSE 469

Room 733 Period W-2 or Th-2

CHARLES E. KINNEY, M.D.
Cleveland

Hearing Impairments in Children

Accepted methods of conducting a successful school hearing conservation program will be presented. These will include screening, otologic diagnosis and follow-up. An analysis of the findings in about 4,000 cases over the past nineteen years will be presented. The changing nature of children's hearing problems will be pointed out.

The author's ideas about therapy in these cases will be outlined. These will include (1) neglected surgery of the middle ear and mastoid, (2) middle ear effusion, and (3) when to recommend a hearing aid, lip reading and auditory training.

COURSE 470

Room 733 Period Th-1

HEINRICH G. KOBRAK, M.D., Ph.D.
Clarkston, Mich.

Treatment of Middle Ear Deafness

Various forms of hearing impairment due to sound conduction lesions will be demonstrated by photographs of the eardrum and compared with the audiologic findings.

The recent methods for treatment of nonotosclerotic conduction-type deafness will be outlined, and tests for selecting the proper patient for the proper procedure will be demonstrated.

A classification of middle ear deafness into five distinct subentities will be outlined, and the prognosis and therapeutic possibilities will be explained.

Slides, a motion picture and new instruments will be shown.

COURSE 471

Room 731 or Room 721 — Period W-3 or Period Th-2

CLAIR M. KOS, M.D.
Iowa City, Iowa

Stapedial Mobilization

Stapes mobilization, which was practiced during the late nineteenth century, discarded, and then recently revived, is a current subject of considerable interest in the otologic profession.

The procedure is successful in improving hearing in an appreciable number of patients; however, it is not an adequate substitute for the fenestration operation. It does, nevertheless, offer hearing improvement to some patients who could not expect improvement by fenestration surgery.

Stapes mobilization is not a procedure for the casual operator or the opportunistic surgeon. One should be prepared to proceed with the fenestration operation later if this is advisable.

Surgical techniques, criteria for selection, possible complications, and results are essential considerations to be discussed.

COURSE 472

Room 712 — Period T-2

MERLE LAWRENCE, Ph.D.
Ann Arbor, Mich.

BY INVITATION

Acoustic Tolerance of the Individual Ear

This course will be comprised of a consideration of noise-induced hearing loss or incipient noise-induced hearing loss as a personal individual problem. It is as much an otologic entity as any aural disease, and the physician's responsibility is to the patient as an individual, not as a statistic. To be discussed are the characteristics of the action within the inner ear as sound is raised above threshold; the significance of the physiologic condition of the inner ear and ways of determining it; the nature of temporary and permanent noise-induced hearing loss; diagnosis of acoustic trauma; the detection of susceptible ears; and the present status of therapy for the individual with a loss in hearing due to noise. Lantern slides will be used.

COURSE 473

Room 734 — Period W-2 or Th-2

FRANCIS L. LEDERER, M.D.
Chicago

Diagnosis and Treatment in the Prevention of Otolaryngologic Misadventures

In evaluating the challenging array of signs, symptoms and symptom-complexes that confront the otolaryngologist—headache, nasal blockage, dizziness, dysphagia, otalgia, hoarseness, aural discharge, obstructive states of the lower airway, sore throat, epistaxis, tinnitus, hearing loss, disturbances of facial, orbital or neck symmetry—pitfalls, transgressions and errors are apparent, if not imminent. None of these signs or symptoms is in itself diagnostic, and all of them call for alertness and, not infrequently, prompt action if an early, accurate diagnosis is to aid recovery, preserve function of a special sense organ, or save a life.

The axiom that "prejudice is a great time saver; it enables one to form opinions without getting the facts" increases the long list of misadventures in diagnosis and treatment and, in many instances, arouses in many patients unreasoning fears due to misinformation and misinterpretation. Illustrative kodachrome photography will be used to demonstrate the vulnerability of the head and neck areas to erroneous approaches in diagnosis and in medical and/or surgical management from the initial interview through the period of definitive treatment.

COURSE 474

Room 744 — Period T-3 or W-3

JULIUS LEMPERT, M.D.
New York

Temporal Bone Surgery: Anatomic and Functional Considerations

Safest methods of exposing to view the surgical anatomy during the performance of temporal bone surgery will be demonstrated. The functional considerations which must be given to the surgical anatomy involved in performing various surgical procedures on the temporal bone will be discussed.

COURSE 475

Room 734 Period T-1 or W-1

JOHN R. LEWIS, JR., M.D.
Atlanta
BY INVITATION

Facial Scars

1. Automobile Scars (and other traumatic scars)
   Management and repair in the various regions of the face
2. Acne Scars (and other types of pock marks)
   Techniques for improvement
3. Burn Scars
   Suggestions for correction of contracted scars and hypertrophic scars. Techniques for z-plasty, full-thickness grafts, split-thickness grafts, advancement of adjacent skin and flaps as applied to burns of the nose, ears, eyelids, cheeks
4. Keloids: Management
5. Irradiation Scars
6. Harelip Scars

COURSE 476

Room 734 Period T-2

MILES L. LEWIS, JR., M.D.
New Orleans

Temporal Bone Surgery: Pitfalls and Problems

Problems of diagnosis of the various diseases of the temporal bone and the operative procedure of choice will be briefly considered.

The pitfalls and problems encountered during the performance of twelve specific operative procedures will be discussed. Damage to various important structures incurred during temporal bone surgery, and the complications, sequelae, and management of such damages, will be considered. The management of various problems relating to the cavity will be discussed.

The course will be illustrated with lantern slides and temporal bone dissections.

COURSE 477

Room 731 Period W-2

JOHN S. LUNDY, M.D.
Rochester, Minn.
BY INVITATION

Analgesia and Anesthesiology

Enough devices and drugs are now available to enable us to deal with situations which were very difficult in the past and which sometimes caused the operation to be postponed. Even patients in the sitting position, as for a nasal operation under local anesthesia, experience a fall in blood pressure, become white, cold, wet and nauseated, and often vomit. It is possible to remedy this situation either with lyophilized hydrocortisone (133 mg. in 2 cc. of water) intravenously or with 25 mg. of ephedrine intravenously.

The use of intratracheal tubes during tonsillectomies and adenoidectomies will be discussed, both when the tube is inserted through the mouth and when it is inserted through the nose. The advantage for children of pentothal administered rectally before they come to the operating room will be dealt with. The use of the new anesthetic, Viadril, for long operations, such as fenestration and mastoidectomy, will be described.

The use of dolitrone not only in the anesthetic dose, which is the full dose, but also in the analgesic dose, which is about half as much, and in the amnesic dose, which is one quarter of the full dose, will be discussed.

We have used 6 per cent dextran in normal saline, as well as 3.5 per cent polyvinyl pyrrolidone, intravenously in the treatment of shock when there has been considerable loss of blood. However, blood is given also if there has been much loss of blood.

The use of pentothal with muscle relaxants will be discussed, since pentothal is the most commonly used intravenous anesthetic.

Preliminary medication will be discussed. How we employ drugs such as phenergan, equanil, placidyl and anileridine and the regularly used drugs such as morphine and atropine will be stressed.

These are some of the drugs and techniques we are now using which make our work much easier than it used to be.

COURSE 478

Room 738 Period W-3 or Th-3

HOLLIE E. McHUGH, M.D.
Montreal, Que., Canada

Peripheral and Central Hearing Disorders in Children: Differential Diagnosis

Hearing disorders in young children result in delayed or abnormal speech development. Clinical research suggests that approximately 50 per cent of severe hearing losses in young children are due to peripheral disturbances, and 50 per cent are due to central dysfunctions in the auditory system. The differential diagnosis of these two groups is based upon their characteristic behavior pattern, their consistent or inconsistent response to appropriate hearing tests, and their different methods of communication.

COURSE 479

Room 781 Period W-3

JAMES W. McLAURIN, M.D.
Baton Rouge, La.

Treatment of External Otitis

The condition which is generally termed otitis externa is actually not a single clinical entity but a number of different diseases, tied together only by the fact that they are all infections and are all located in the external ear. If otitis externa is a group of diseases, rather than a single disease, no single specific treatment can be expected to be effective for them all. In the discussion of therapy, therefore, we will be concerned with general principles first and with specific agents second. Finally, methods of treatment will be reviewed and their rationale discussed.

COURSE 480

Room 738 Period W-1 or Th-1

WILLIAM J. McNALLY, M.D.
Montreal, Que., Canada

Labyrinthine Tests

This course is designed to present the basic or elementary facts which are necessary for an understanding of clinical labyrinthine tests. Much of the time will be taken up in studying the actual methods used in carrying out the various tests. Time will also be given to working out the interpretation of reactions which follow the simple tests. The simplicity of the tests will be stressed. As a brief introduction, the anatomy and physiology of the semicircular canals and the otoliths will be reviewed. The examination of spontaneous phenomena will be considered. Guides for the detection of spontaneous nystagmus will be given. An interpretation of past-pointing tests and their relation to vestibular stimulation will be studied. The technique of performing the caloric and rotation tests will be taken up in detail. The rules which govern labyrinthine reactions will be used to interpret the results of these tests. Finally, the significance of the results of the tests in labyrinthine and intracranial diagnosis will be investigated.

COURSE 481

Room 752 Period Th-1

ALDEN H. MILLER, M.D.
Los Angeles

Laryngeal and Tracheal Emergencies in Infants and Children

This course will be a practical presentation of the diagnosis and treatment of conditions causing dangerous obstruction of the larynx and trachea in infants and children.

The acute obstructive infectious diseases of the larynx, supraglottic or subglottic, cause most emergencies. A brief differential diagnosis and outline of treatment of them will be given.

A number of less common conditions are frequently presented to the otolaryngologist for immediate diagnosis and treatment. Of these, the following will be discussed:

A. In newborn babies and infants
   1. Laryngomalacia (congenital laryngeal stridor)
   2. Glossoptosis and micrognathia
   3. Tumors, trauma, paralysis
   4. Dyspnea due to tracheal compression by mediastinal tumors or anomalies as distinguished from atelectasis, bronchiolitis, agenesis, etc.

B. In young children
1. Bulbar poliomyelitis
2. Head injuries
3. Fracture of the larynx
4. Foreign bodies and caustic burns
5. Angioneurotic edema

COURSE 482

Room 734 Period T-3

JOSEPH B. MILLER, M.D.
Mobile, Ala.
BY INVITATION

Mucolytic Aerosols for Obstructive Respiratory Conditions

Obstruction of the respiratory passageways due to retained thickened secretions has always been a serious problem in the treatment of respiratory diseases. We finally have available medications effective in clearing obstructions, and new developments in treatment are occurring rapidly. The latest advances in "pulmonary plumbing" will be described, their indications and effectiveness will be discussed, and the various techniques and types of equipment required will be presented. The new medications and new equipment for their use are rapidly making mucus plugs and obstructions a worry of the past.

COURSE 483

Room 727 Period Th-3

SYLVESTER C. MISSAL, M.D.
Cleveland

Skin Testing: Modern Technique

Skin testing continues to maintain an important role in the diagnosis and treatment of nasal allergy. It is of the greatest value in inhalant allergy. When food is a factor, the results are less reliable. Problems involved in skin testing as they apply to an otolaryngic practice will be discussed.

A practical method of doing intradermal and scratch tests of sensitivity to foods and inhalants will be demonstrated. The comparative value of various methods will be discussed. The modern technique of utilizing skin reactions as a guide to therapy will be illustrated. Case material will be presented.

COURSE 484

Room 738 Period W-2 or Th-2

PAUL M. MOORE, JR., M.D.
Cleveland

Cysts and Fistulas of the Face and Neck: Diagnosis and Treatment

A discussion of the various cysts and fistulas found in the region of the head and neck. The embryologic cause of many of the lesions will be discussed along with their diagnosis, differential diagnosis, and treatment. Amply illustrated with lantern slides.

COURSE 485

Room 732 Period T-3
or or
Room 733 Period Th-3

LEWIS F. MORRISON, M.D.
San Francisco

The Pain in the Neck

A brief review of the neuroanatomy of this area and the common causes for discomfort and/or pain in and about the neck will be presented. An orderly sequence of thought and action will shorten both the time and expense required for the differential diagnosis. Until the diagnosis is made, it is important that therapy be withheld, or at least so directed that it will not interfere with arriving at a correct answer. A portion of the time will be set aside as a question-and-answer period.

COURSE 486

Room 781 Period T-2

HARRY NEIVERT, M.D.
New York

Workshop for Deformed Instruments

Every surgeon who uses instruments should be able to keep them in good working condition. Particularly, he should not have to send them out to be sharpened and be annoyed by the long delay in their return. A simple positive method will be taught, one that anyone can learn.

Many other details on the care of instruments will be shown, and there will be an exhibit of a number of practical instruments to increase efficiency in technique.

Those taking the course should bring with them all types of cutting instruments, knives, scissors, curets, chisels, even household knives. They will learn which ones need an expert mechanic's attention and which can be repaired in a few minutes with the "Neivert Steel Whittler."

COURSE 487

Room 706 Period W-2

HARRY NEIVERT, M.D.
New York

Surgery of the Bony Nasal Vault: Principles and Mechanics

Some new principles in the surgery of the bony bridge and the mechanics necessary to attain better results with less trauma, greater ease and speed will be discussed.

We shall explain the lack of union at the dorsum leaving gaps in the bony bridge; causes of irregular thickening under the skin; why the bony bridge broadens and sinks lower than anticipated, making the cartilaginous bridge too prominent; why outfracturing with a wide chisel should give better results with less comminution than infracture with fingers; why I leave and preserve intact all periosteum no matter how large the hump.

We shall demonstrate the proper use of new instruments for elevating the periosteum as one sheath [illegible] the osteotomy without elevati[illegible] the p[illegible] and soft tissues, thereby lessening the extent of postoperative ecchymosis and swelling; making the desired green-stick fracture without cutting the soft tissues on the nasal side of the bridge; how to use a narrow chisel and get a straight line for the osteotomy; how to prevent the nonunion at the dorsum of the two sides of the nasal bridge; how to prevent the sinking of the bridge, and many other problems.

COURSE 488

Room 776 or Room 744 Period W-2 or Period Th-1

JOSEPH H. OGURA, M.D.
St. Louis

Laryngectomy and Neck Dissection

The technique of the one-stage wide-field laryngectomy combined with a radical neck dissection in one block will be detailed on serial lantern slides to demonstrate the most efficient methods for removal of the primary malignant lesion and its metastasis.

The importance of the sequence of steps in the procedure, conservation of bleeding, and preservation of as much function as possible will be emphasized.

The basis for the selection of cases for surgery will be discussed. Case illustrations will be given.

A motion picture illustrating the technique will also be shown.

COURSE 489

Room 750 Period Th-1

SAMUEL J. PEARLMAN, M.D.
Chicago

Important and Annoying Ear, Nose and Throat Complaints in Old Age

While there are few specific diseases of the aged, there are conditions present in all ages which in later life are often annoying, persistent, and tend on occasion to be unendurable.

A partial catalog may run as follows: dry [illegible], burning tongue, postnasal drip, fissures about the corners of the mouth and in the nasal vestibuli, early carcinoma of the pharynx, leukoplakia, crusting conditions in the nose including atrophic rhinitis, itching ears, head noises, vertigo and senile deafness. An attempt will be made to point out the important features of these complaints and to indicate, when possible, satisfactory modes of treatment.

COURSE 490

Room 727 Period Th-2

HENRY B. PERLMAN, M.D.
Chicago

Fluid in the Middle Ear: Etiology and Management

Different kinds of fluid may be found in the middle ear and adjacent air cells. Each kind is associated with a particular pathogenesis. A clear understanding of the normal and pathologic physiology of the eustachean tube is essential to the interpretation of this group of ear diseases. The recognition of their more subtle changes and their relation to deafness is sometimes difficult. Careful observation of the natural course of the various disease states is also important in understanding indications and prospects of therapy. Experience with some unusual cases seen during the past few years will be reviewed. A motion picture will be presented.

COURSE 491

Room 776 Period T-1 or Th-2

F. JOHNSON PUTNEY, M.D.
Philadelphia

Combined One-Stage Pharyngeal Diverticulectomy

The treatment of pharyngeal diverticula by external surgical approach assisted by esophagoscopic manipulation is presented. The operation can be performed in one stage with safety, and the complication of mediastinitis is rare. Endoscopic manipulation not only aids the surgeon in identification of the pharyngeal sac but also allows closure of the esophagus over a rigid tube to assure an adequate esophageal lumen.

COURSE 492

Room 777 Period W-1

GEORGE F. REED, M.D.
Boston
JAMES W. McLAURIN, M.D.
Baton Rouge, La.
BEN H. SENTURIA, M.D.
St. Louis

Pathology and Bacteriology: Practical Applications

This panel will attempt to demonstrate and illustrate some of the major points of pathology and bacteriology as they are seen in common every-day otolaryngologic conditions. Emphasis will be placed on those aspects of pathology and bacteriology which are necessary or useful in the intelligent understandings and treatment of these common conditions.

COURSE 493

Room 776 Period T-3 or W-1

SCOTT N. REGER, Ph.D.
Iowa City, Iowa

Practical Office Audiometry

This course will comprise (1) the common sources of error in audiometry; (2) an adequate testing procedure; (3) the use of masking while obtaining air and bone conduction measurements; and (4) interpretation of audiograms.

COURSE 494

Room 776 Period T-2 or Th-1

HERBERT J. RINKEL, M.D.
Kansas City, Mo.
BY INVITATION

Food Allergy in Otolaryngologic Practice

I. History Taking. A resume of the cardinal symptomatic patterns which indicate the possible existence of food allergy, together with cross questions to either repudiate or substantiate this possibility.

II. Diagnostic Methods. A survey of the relative accuracy of skin tests, feeding tests, diet charts, and clinical studies.

III. Therapeutic Procedures for Food Sensitive Patients. A resume of the clinical handling, advice, information, and procedures to be followed to improve the patient who is food sensitive. Particular stress will be placed on those features which the busy practitioner can use when space and assistance are limited.

COURSE 495

Room 777 or Room 713 — Period W-2 or Period Th-3

HARVEY S. RUSK, M.D.
Pueblo, Colo.

The Head-Low Position in Tonsillectomy

Tonsillectomies are performed frequently, and there are many variations in technique, all of which can be successful in the hands of a good surgeon. The Rose position is generally misunderstood and is not practicable; therefore, the head-low position, which includes the essentials of that position—the head of the patient lower than the body, and the tonsil area lower than the larynx, is recommended for the greater safety of the patient. Several variations will be described with special reference to the instruments needed, the surgical procedure and the control of complications. The essentials of the original Rose position can be obtained by tilting the operating table about 15 degrees and extending the head. The extension can be by a pillow or blanket under the shoulders, with the occiput resting on the table. Sometimes a roll is placed under the neck; the regular headrest may be used. In proper extension, the occiput is two or three inches below the level of the table. This is best accomplished by a special headrest attached to the operating table. Examples of headrests will be shown. A special mouth-gag supporting the tongue is necessary. The position of the surgeon at the head of the patient has many advantages.

Removal of the tonsils is by dissection and snare, and the adenoids are removed by curet. Points in technique will be described, and the reversal of the anatomic picture, due to the position of the surgeon, discussed. The advantages of a light anesthetic will be pointed out.

The dangers of anesthesia, of aspiration, and of hemorrhage will be pointed out, and appropriate measures shown to prevent and control them. The use of the head-low position, including the personal technique of the author, will be described in detail.

Postoperative care will be discussed, and a special technique useful in postoperative hemorrhage, using the head-low position, will be demonstrated.

COURSE 496

Room 777 or Room 750 — Period T-3 or Period Th-2

ROBERT E. RYAN, M.D.
St. Louis

Headache: Differential Diagnosis and Treatment

The differential diagnosis and the treatment of various types of headache will be presented. Among types of headaches discussed are migraine, histaminic cephalalgia, sinusitis, myalgia, tension headache, psychogenic headache, hypertensive headache, post-traumatic headache, and ocular or otic headache, as well as the mixed type of headache problem.

Various new preparations for treating headache patients will be discussed and the results of treatment demonstrated. Many of these drugs are still in the investigative stage, while others have been on the market for only a short period of time. The prophylactic and the symptomatic phases of the various types of headache will be discussed.

Techniques for recording the history of the headache patient and for routine examination will be outlined.

COURSE 497

Room 777 or Room 776 — Period W-3 or Period Th-3

HAROLD F. SCHUKNECHT, M.D.
Detroit

Perceptive Deafness

The course will consist of a discussion of various types of inner ear disease, the concurrent disturbances in cochlear physiology, and their resulting clinical manifestations.

COURSE 498

Room 781 or Room 750 — Period T-1 or Period Th-3

LYLE M. SELLERS, M.D.
Dallas

Acute and Chronic Infectious Frontal Sinusitis: Successful Management

This course is designed to help the otolaryngologist meet the difficult prob-

lems presented by the infected frontal sinus.

The problems are based especially on the anatomic and physiologic properties peculiar to this sinus. These peculiar properties are described and discussed so as to make clear the clinical conditions which result from them, and medical and surgical methods are suggested as solutions to the problems.

The medical and surgical procedures which have met the test of time and usage in our own hands will be described in detail and will be illustrated and documented fully by slides, dissections, and illustrative case histories.

COURSE 499

Room 743 Period T-1

BEN H. SENTURIA, M.D.
St. Louis

Diseases of the External Ear: New Developments in Treatment

There will be presented a review of recent studies and experiments relating to the cause and treatment of diseases involving the external ear. These will include consideration of the various factors involved in the development of external otitis. The indications and contraindications for the use of antibiotics and corticoids will be discussed.

COURSE 500

Room 777 Period Th-1

BEN H. SENTURIA, M.D.
St. Louis

Middle Ear Effusions: Prevention and Treatment

A review of the basic anatomic and physiologic factors which are considered important in the development of negative pressures and middle ear effusions will be presented. Methods of differential diagnosis will be evaluated critically. The pros and cons of inflation therapy and myringotomy will be discussed. Consideration will be given to various prophylactic and therapeutic measures which are considered of importance in this group of diseases.

COURSE 501

Room 744 or Room 743 Period W-1 or Period Th-1

GEORGE E. SHAMBAUGH, JR., M.D.
Chicago

Practical Office Routine in Otolaryngologic Problems

Surgery comprises only a small part of the practice of otolaryngology. The majority of conditions that are encountered are satisfactorily treated in the office. Practical office routines which have been found useful in more than 20 years of practice in otology will be discussed, including the management of hearing impairments, selection of cases for stapes mobilization or fenestration, the management of labyrinthine hydrops and of allergic disorders of the outer and middle ear.

COURSE 502

Room 743 Period T-2 or W-2

MARVIN W. SIMMONS, M.D.
Fresno, Calif.

Problem of the Bleeding Patient

Bleeding from the nose, postoperative tonsil and adenoid bleeding, and bronchial and esophageal hemorrhage may be sources of considerable difficulty for the otolaryngologist.

An understanding of the basic principles of coagulation, hematologic cause for the bleeding, blood tests, and the need for transfusions and when to give them will help materially to alleviate anxiety.

COURSE 503

Room 744 Period W-2

KINSEY M. SIMONTON, M.D.
Rochester, Minn.

Nasal Polyps: The Definitive Surgical Treatment

The high incidence of recurrence of nasal polyps after surgical removal results from the nature of polyps and the

pathologic physiology created by nasal and sinal obstruction. The polypoid nose possesses poor resistance to infection. Chronic sinusitis accompanying polyposis promotes rapid recurrence of polyps. The definitive surgical treatment of nasal polyps has three basic aims: (1) removal of polypoid mucosa within the sinuses as well as within the nose, (2) removal of potential polyp-forming mucosa from the sinuses, particularly the ethmoid labyrinth, and (3) provision of free drainage from the sinuses. The results of this approach to the problem justify the procedure in properly selected cases.

COURSE 504

Room 713 Period Th-1

GEORGE A. SISSON, M.D.
Syracuse, N. Y.

Carcinoma of the Maxillary Sinus: Surgical Treatment

1. Why is the early diagnosis of carcinoma of the antrum often missed?
2. How can a busy otolaryngologist make an early diagnosis?
3. How far should the average otolaryngologist go towards treating the patient once the diagnosis of carcinoma is made?
4. How effective are the radical surgical procedures?
5. Which cases are acceptable for radical surgery?
6. What are the basic surgical techniques used in eradicating this disease?
7. When is radical surgery used in combination with other modalities of treatment?
8. When is radical surgery not indicated?
9. How are rehabilitation and reconstruction problems after the radical surgery managed?
10. Are there any happy patients who have had radical surgery for the control of this disease?

These ten questions will be analyzed and discussed in this course. Color slides illustrating anatomy, surgical techniques and case studies will be shown. Statistics will be cited. A motion picture of the surgical technique of a radical resection of the maxilla with exenteration of the orbital contents will be presented.

COURSE 505

Room 750 Period T-1

EMANUEL M. SKOLNIK, M.D.
Chicago

Cleft Palate: Relationship to Otolaryngology

This course is designed for the discussion of recent trends and practices in meeting the complex needs of the cleft palate patient. Habilitation through the use of a clinical team as it functions in the Cleft Palate Center of the University of Illinois will be described. The place of prosthetic and of surgical treatment will be examined in terms of the anatomic and physiologic disturbances that are characteristic of this disability. The conduct of the otorhinolaryngologic care of cleft palate patients with chronic otitis media, hearing impairment, upper respiratory infections, the tonsil and adenoid problem, and nasal deformities will receive special emphasis.

COURSE 506

Room 750 Period W-1

EMANUEL M. SKOLNIK, M.D.
Chicago

Electrodiagnosis of the Facial Nerve

Electrodiagnosis is an adjunct to accurate diagnosis of neuromuscular disease. While it is a very valuable diagnostic aid, it does not relieve the clinician of diagnostic responsibility. The reaction of degeneration test (R.D.) is a good screening test; its limitations must be understood. Electromyography (E.M.G.) gives the most basic information and, after a screen test has been performed, provides information of great value in diagnosis, prognosis, and evaluation of effectiveness of therapy. Practical interpretation of the R.D. and E.M.G. and its application will be stressed. The mechanics of testing will be presented.

COURSE 507

Room 750 Period T-2

J. BRYDON SMITH, M.D.
Toronto, Ont., Canada

Facial Nerve Paralyses: Surgical Treatment

The lesions of the facial nerve and

their treatment are in most instances an otolaryngologic problem. This course is designed to review these lesions quickly and to discuss the accepted present-day treatment. These problems will be covered by slides and a short motion picture of Bell's palsy artificially produced in animals, with subsequent recovery. The decompression operation, nerve grafts, and nerve anastomoses will be discussed. The treatment of histrionic spasm will be mentioned.

COURSE 508

Room 750 Period T-3

MAX L. SOM, M.D.
New York

Laryngoesophagectomy: Primary Closure with Laryngotracheal Autograft

Various methods for surgical treatment of carcinoma of postcricoid and cervical esophagus will be presented. A new method of primary closure, after removal of carcinomas in continuity with the posterior half of the larynx and trachea, will be illustrated. The anterior portion of the larynx and trachea is preserved and is used as a laryngotracheal autograft to form the anterior wall of the new pharyngoesophagus. A free split-thickness skin graft is used to complete the posterior surface of the new esophagus, and a portex hollow tube is inserted for alimentation.

COURSE 509

Room 727 Period Th-1

FRANCIS A. SOOY, M.D.
San Francisco

Treatment of Benign and Malignant Tumors of the Nasal Cavities

A discussion of proper methods for diagnosing and treating benign tumors of the nasal septum, nasal vestibule, antrum and ethmoid sinuses will be illustrated by kodachrome slides. The course will be concluded with a motion picture in color showing a new and experimental method used in the treatment of carcinoma of the nasopharynx.

COURSE 510

Room 750 Period W-2

OLIVER W. SUEHS, M.D.
Austin, Texas

Secretory Otitis Media: Etiology, Diagnosis, and Management

Secretory otitis media is one of the most important and most perplexing otologic problems in office practice today. It is the most common cause of hearing loss in children. Therefore, we must be able to recognize it and to treat it adequately if we are to prevent chronic adhesive otitis media and resultant permanent hearing impairment.

This course will include a discussion of the incidence of secretory otitis media, the anatomical considerations that are of importance in its pathogenesis, and a brief review of pathologic changes incident to it. The various causes of secretory otitis media will be reviewed, with particular attention to local and systemic conditions which contribute recurrence and chronicity.

The office management of acute and chronic secretory otitis media in adults and children will be discussed, with emphasis on the importance of correct etiologic diagnosis and treatment of the underlying cause. The results of treatment of recurrent and chronic secretory otitis media in children by external irradiation and by adenoidectomy will be discussed.

COURSE 511

Room 743 Period T-3
or or
Room 740 Period Th-1

VICTOR R. SYRACUSE, M.D.
New York

Prevention of Postoperative Drooping of the Nasal Tip

In the reduction of nasal length, it is essential to produce an appropriate angle between the nasal base and the lip. This is achieved by tilting the lower nasal component upward and backward (cephalodorsally). Obviously, the tilting of the lobule lengthens the distance between the apex (tip of the nose) and the columellar-labial angle. In the average nose, suf-

ficient "give" is present for the spanning of this increased distance, but in case of shortened nasal structures, difficulty will be encountered.

Postoperative drooping of the tip due to a short columella has been attributed erroneously to cicatricial contraction in the healing of the septocolumellar incision, and to the pull of the depressor septi nasi and/or the weight of the lobule.

Based upon these empiric assumptions, a multiplicity of techniques have been elaborated to prevent postoperative drooping of the tip; the number indicates that none is particularly efficacious. To dispel the bewilderment of the occasional operator, a critical review of the various methods will be given.

COURSE 512

Room 752 Period T-1

JUAN MANUEL TATO, M.D.
Buenos Aires, Argentina
BY INVITATION

Tympanoplasty: The Importance of Functional Examination

This course deals with the preoperative determination of hearing loss related to the pathology of the tympanic transmission apparatus. The methods used and results obtained are important for diagnosis and for selection of an adequate type of surgical correction. Tests of the function of the vestibule and chorda tympani are less important in this regard. The anatomic findings during the operation will be assessed for the reconstruction of the tympanic transmission apparatus.

COURSE 513

Room 752 Period W-1

JUAN MANUEL TATO, M.D.
Buenos Aires, Argentina
BY INVITATION

Tympanoplasty

Tympanoplasty is the functional reconstruction of the tympanic apparatus by surgical procedures. We will deal with the classification of the different types of pathologic-anatomic disturbances of the tympanic apparatus and corresponding surgical techniques directed toward the functional correction of such processes, which include sequelae of otitis media, adhesive processes, and congenital malformations of the external and the middle ear.

Descriptions of different procedures and personal results, as well as those reported in the literature, will be presented.

COURSE 514

Room 743 Period W-3 or Th-3

JOHN F. TOLAN, M.D.
Seattle

Treatment of Chronic Sinusitis

Conditions that usually precipitate a chronic sinusitis will be dealt with. The obstructive mechanisms leading up to this disease, such as nasal fractures, septal deviations, valvular disturbances, hypertrophied turbinates, polyps, chronic allergic rhinitis and atrophic rhinitis, will be discussed. Time will also be spent in discussing the metabolic dysfunctions which also play a part in this chronic disease. Finally, medical and surgical methods employed in an effort to improve this condition will be outlined. The differential diagnosis of chronic bacterial sinusitis and malignancies of the sinuses, will also be brought into the discussion.

COURSE 515

Room 738 Period T-2
or or
Room 716 Period Th-2

G. EDWARD TREMBLE, M.D.
Montreal, Que., Canada

Practical Therapeutics in Office Practice

In this course a number of common conditions encountered every day by otolaryngologists will be discussed:

1. Nasal obstruction due to engorged or hypertrophied inferior turbinates; its treatment
2. Methods of shrinking the posterior tips
3. The conservative treatment of sinusitis in view of our present knowledge

4. A safe and simple method of irrigating the sphenoid sinus. This is important in cases of optic neuritis. A six-minute motion picture in color will present a few important measurements and instruments used in this procedure.

5. External otitis—a common complaint. Treatment has changed considerably in the past ten years. The modern concept appears to be that various strains of Pseudomonas aeruginosa (Bacillus pyocyaneus) are the causative factors in most cases. This concept will be discussed and the infrequency of fungous infections mentioned. The relative merits of the current antibiotics will be described and a number of suggestions given which have proved of value in these difficult cases.

6. The tonsil and adenoid problem—our present-day concept. The general conditions most likely to be improved and the time to operate will be discussed. If time permits, the indications and contraindications for the operation will be presented.

COURSE 516

Room 738 or Room 716 — Period T-1 or Period Th-1

KURT TSCHIASSNY, M.D.
Cincinnati

Simplified Concepts and Tests of Labyrinthine Function

Routine clinical examination of the vestibular apparatus depends mainly on tests of the functioning of the semicircular canals. Our concepts in this matter are based on the law of Flourens and the three laws of Ewald. These laws will be discussed, and a revised and simplified form of Ewald's laws, relating endolymph movements to the side of the head instead of to the ampulla, will be presented. Justification for this changed viewpoint will be supported by means of a simple diagrammatic model. Simple experiments on perrotatory nystagmus in the normal individual will show the predominance of visual over labyrinthine factors. The possibility of using perrotatory nystagmus as a test in the differentiation of hysterical blindness, complete organic blindness and amblyopia will be discussed. A simple method for a minimum caloric test will be demonstrated.

COURSE 517

Room 752 — Period T-2 or W-2

O. E. VAN ALYEA, M.D.
Chicago

Recent Advances in the Management of Sinusitis

Persistence of a sinus infection implies inadequate drainage. Factors contributing to impairment of drainage may be local or systemic. The local factors may be structural or pathologic, and in some cases the sinusitis is maintained by a combination of contributing causes.

The goal of the rhinologist is to eliminate the causative factors while treating the infection.

Seldom is the radical removal of sinus mucosa in the treatment of sinusitis indicated, and it should be undertaken with the understanding that only temporary relief may be expected and that a return of the symptoms, even more pronounced than formerly, may ensue.

In this course the techniques of various therapeutic measures used successfully in the management of sinus disease will be discussed in detail.

COURSE 518

Room 776 — Period W-3

HANS VON LEDEN, M.D.
and
PAUL MOORE, Ph.D.
BY INVITATION
Chicago

Organic Voice Problems

This course presents a practical introduction to voice problems and their relation to laryngeal physiology. It is intended for the practicing laryngologist who is interested in vocal rehabilitation.

The discussion will extend to diagnosis and therapy of all common organic voice problems. Close collaboration between

the laryngologist and voice therapist in achieving optimum results will be stressed.

Slow-motion pictures of laryngeal function, obtained with an ultrahigh-speed camera, will be presented to illustrate normal and abnormal laryngeal function.

COURSE 519

Room 750 Period W-3

LINDEN J. WALLNER, M.D.
Chicago

Effects of Tobacco on the Respiratory Tract

The subjective complaints and the objective findings in the respiratory tract of smokers will be reviewed. Common symptoms are dryness, burning, and irritation of the tongue, mouth or throat. Postnasal discharge, hoarseness and cough are also frequent. Objective findings include hyperemia of the mouth, soft palate, pharynx and larynx. Polypoid degeneration and leukoplakia of the vocal cords are considered specific results of heavy smoking. The possible role of smoking as a cause of cancer of the respiratory tract will be discussed. Kodachrome slides will be used to illustrate the various lesions.

COURSE 520

Room 781 Period T-3

FRANK H. WANAMAKER, M.D.
Seattle
BY INVITATION

Temporomandibular Joint: Anatomy, Diagnosis and Treatment

The anatomy, diagnosis and treatment of the temporomandibular joint. The gross anatomy of this complex joint will be demonstrated by slides and cadaver.

COURSE 521

Room 781 Period W-2

FRANK H. WANAMAKER, M.D.
Seattle
BY INVITATION

Differential Diagnosis of Pain on the Side of the Face

The differential diagnosis of pain on the face will be presented. The treatment of fractures of the neck of the condyle of the mandible will be demonstrated by casts of teeth. The injections used for acute inflammation of the joint will be demonstrated.

COURSE 522

Room 738 Period T-3
or or
Room 713 Period Th-2

HENRY L. WILLIAMS, M.D.
Rochester, Minn.

Treatment of Meniere's Disease

The evidence suggests that Meniere's disease depends on an inherited constitutional tendency toward autonomic disintegration of the cholinergic type on exposure of the individual to a preferred stress. It would seem unreasonable, therefore, to expect a "cure" in the sense of a complete elimination of this tendency. The most that can be expected of any medical treatment is to obtain a more or less prolonged remission for the patient. Yet it is equally unreasonable to proclaim a therapeutic nihilism in respect to the disorder. It is possible to demonstrate definite objective changes by properly directed medical treatment; many patients may be maintained symptom free for relatively long periods, and still others may have the frequency of their attacks reduced.

Certain patients with Meniere's disease, however, are not controlled by medical treatment from the first. It may be that after a time, patients at first controlled by treatment fail to respond any longer. Those of a third group have a tendency to sudden falling attacks, which may expose them to serious bodily injury. A fourth group may be unable to follow the prescribed medical regimen for social or economic reasons.

If such patients have unilateral involvement of their equilibrial end-organs, and especially if their hearing on the involved side is not adequate for social communication, surgical intervention in the form of destructive labyrinthotomy is indicated.

In this course it is intended to present treatment directed against the various physiologic changes implied by the term "autonomic disintegration." The surgical technique of destructive labyrinthotomy, illustrated by a motion picture, will also be presented.

COURSE 523

Room 743 Period Th-2

DeGRAAF WOODMAN, M.D.
New York

Glottic Obstruction: Techniques for Correction

1. Open approach to arytenoidectomy for bilateral abductor paralysis
2. Corrective operation for laryngeal stenosis
3. Treatment of laryngeal web

Discussion of the above problems will be supplemented by slides and kodachrome motion pictures with sound.

COURSE 524

Room 752 Period T-3 or W-3

SIDNEY K. WYNN, M.D.
Milwaukee

External Nasal Growths: Removal and Primary Plastic Reconstruction

The removal of external nasal growths may vary from simple excision of the growth with a primary closure involving local tissue to an extensive removal of a growth with the use of skin grafts or flaps.

In the lower one third of the nose, the close attachment of the skin of the underlying alar cartilages poses problems which make removal more difficult. Directions of lines of excision and methods of removal of various types of growths will be demonstrated. The use of the split-thickness skin graft, the use of the full-thickness skin graft, and the use of the actual flap for closure of defects will be discussed. Individual problems, such as the excision of dermoid cysts of the nose, excision of carcinomatous types of growths, the trimming of the alar cartilages in order to form greater relaxation of the overlying skin, and the injection and surgical therapy for hemangiomas of the nose, will be discussed.

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
1	Adler	Physiology of Vision	3 PERIODS M-4, T-4, W-4
2	Allen et al	Bacteriology & Infectious Diseases	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
3	Ballintine & Johnson	Clinical Aqueous Tonography	2 PERIODS M-5, M-6
4	Becker & Kinsey	Studies on Aqueous Flow	2 PERIODS M-4, M-5
5	Bedell	Medical Ophthalmoscopy	3 PERIODS M-4, T-4, W-4
6	Berke	Surgery of Oblique Muscles	2 PERIODS M-4, M-5
7	Berliner	Slit Lamp Microscopy: Advanced	4 PERIODS M-4, T-4, W-4, Th-4
8	Boeder	Practical Optics	2 PERIODS T-4, T-5
9	Brockhurst	Indirect Ophthalmoscopy	2 PERIODS T-5, T-6
10	Brown et al	Eye Muscles	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
11	Byrnes	Ophthalmic Filters	2 PERIODS T-4, T-5
12	Clark, G.	Retinal Detachment	3 PERIODS M-6, T-6, W-6
13	Clark, W.	Cataract Extraction: Selection of Patient	2 PERIODS M-5, M-6
14	Clark, W.	Surgery of Ocular Muscles	2 PERIODS T-5, T-6
15 or 16	Copeland	Streak Retinoscopy	4 PERIODS M-4, M-5, T-4, T-5 or W-4, W-5, Th-4, Th-5
17	Costenbader et al	Comitant Strabismus	12 PERIODS M-4, M-5, M-6, T-4 T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6
18	Guibor	Orthoptics: Office and Home Techniques	3 PERIODS T-6, W-6, Th-6
19	Henderson	Neuro-ophthalmology	3 PERIODS M-5, T-5, W-5
20	Hollenhorst	Arterial Diseases	2 PERIODS W-5, W-6
21	Hughes et al	Ophthalmic Plastic Surgery: Fundamental	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
22	Knighton et al	Highlights in Glaucoma	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
23	McLean et al	Retinal Detachment	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
24	Ogle	Essential Aspects of Binocular Vision	2 PERIODS T-4, T-5
25	O'Rourke	Cross Cylinders & Astigmatic Dials	2 PERIODS M-4, M-5
26	Pfeiffer & Jones, I.	Roentgenography of the Eye & Orbit	2 PERIODS M-4, M-5

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
27	Pischel	Retinal Detachment	3 PERIODS M-6, T-6, W-6
28	Regan, J., & Regan, C.	Refraction: Practical Aspects & Aids in Difficult Problems	6 PERIODS M-4, M-5, T-4, T-5 W-4, W-5
29	Rolett	Gonioscopy: Practical Application	2 PERIODS W-4, W-5
30	Romaine et al	Ocular Motility	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
31	Romaine	Refraction Problems: Treatment	3 PERIODS M-6, T-6, W-6
32	Sanders, et al	Vascular Diseases	3 PERIODS T-6, W-4, Th-4
33	Schimek & Bousquet	Gonioscopy & Aqueous Outflow Determinations	2 PERIODS M-5, M-6
34	Sloane	School Vision Testing	2 PERIODS M-4, M-5
35	Sloane	Telescopic Lenses	2 PERIODS T-4, T-5
36	Pollen & Gettes	Prescription of Prisms; Drugs in Refraction	2 PERIODS W-4, W-5
37	Smith et al	Ophthalmic Plastic Surgery: Advanced	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
38	Stow	Diagnostic & Therapeutic Office Procedures	2 PERIODS W-4, W-5
39	Tait	Heterophoria	2 PERIODS M-4, M-5
40	Theobald et al	Histopathology	12 PERIODS M-4, M-5, M-6, T-4 T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6
41	Thorpe, et al	Slit Lamp Biomicroscopy: Fundamentals	9 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6
42	Thorpe et al	Slit Lamp Biomicroscopy: Recent Developments	3 PERIODS Th-4, Th-5, Th-6
43	Thorpe	Surgery of Intraocular Foreign Bodies	2 PERIODS T-4, T-5
44	Townes	Cataract Surgery: Complications	2 PERIODS W-4, W-5
45	Troutman	Enucleation Surgery: Management	2 PERIODS T-4, T-5
46	Wheeler & Knapp	Concomitant Strabismus	6 PERIODS M-4, M-5, T-4, T-5 W-4, W-5
47	Wise	Retinal Neovascularization	2 PERIODS W-4, W-5
48	Home Study		10 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6, Th-4

SECTION ON INSTRUCTION

ADVANCE ORDER SHEET

All courses cost $2.00 for each period (one hour). Follow instructions explicitly and check for errors in listing before mailing.

Orders will not be accepted for presale after October 4. To ensure acceptance they should be mailed before October 1 to

WILLIAM L. BENEDICT, M.D., *Executive Secretary-Treasurer*
American Academy of Ophthalmology and Otolaryngology
100 First Avenue Building, Rochester, Minnesota

Academy Candidates and Guests May Purchase Tickets Only at Instruction Desk in Registration Foyer

(Over)

ADVANCE ORDER SHEET

ORDERS FILLED ONLY IF CURRENT DUES ARE PAID

NO REFUNDS WILL BE MADE AFTER OCTOBER 12

(Type or Print) Last Name First Name Middle Initial

Office Address

City Zone State

Days to be Present

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday

Total Amount Enclosed $_____

SELECTION OF COURSES ON REVERSE SIDE OF THIS BLANK

RECAPITULATION OF GENERAL INSTRUCTIONS

1. Monday, Tuesday, Wednesday, and Thursday are represented by the letters M, T, W, Th. The first period in the morning is represented by figure 1, second period by figure 2 and third period by figure 3. The first period in the afternoon is represented by figure 4, second period by figure 5, and third period by figure 6. All courses in oto-laryngology and maxillofacial surgery are presented in the mornings. All courses in ophthalmology are presented in the afternoons.

2. Reservation of instruction tickets in advance of the meeting will be made ONLY for MEMBERS whose 1956 dues have been paid. Academy candidates and guests may make selection of courses ONLY at the General Registration Desk in Chicago.

3. Make check payable to W. L. Benedict, M.D.

4. Mail order promptly to ensure reservation of first choices. If necessary, an attempt will be made to rearrange schedule to include "first choices."

(Over)

SELECTION OF COURSES

PERIOD		FIRST CHOICE		SECOND CHOICE		THIRD CHOICE	
		Course No.	Lecturer	Course No.	Lecturer	Course No.	Lecturer
MON.	4						
P.M.	5						
	6						
TUES.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
WED.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
THURS.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Monday

Key M-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
201	Aldrich	Emotional Problems in the Ophthalmologist's Patients
204	Alvaro	Uveitis: Etiology & Treatment
207	Baird	Lesions of the Orbit: Differential Diagnosis
208	Bannon	Aniseikonia: Its Role in Refractive Problems
213	Berens	New Procedures in Ophthalmic Surgery
215	Bettman	Value of Goniotomy
217	Boyes	Problems in Eye Surgery
223	Chamlin	Perimetry
226	Cooper	Principles of Muscle Surgery
240	Dunlap	Divergence Anomalies
242	Falls	Practical Application of Heredity
244	Fink	Binocular Problems in Routine Refraction
245	Fonda	Subnormal Vision: Technique for Examination
267	Jacobson	Electroretinography
273	Katz	Ophthalmic Anatomy
291	Linn	Paralyses of Motor Nerves to the Eye
313	Myers	Vertical Phorias & Tropias
350	Whalman	Practical Points in Eye Surgery

Key M-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
203	Allen, H.	Operating Room Technique
210	Benedict	Atrophic Changes of the Iris
216	Block	Office Practice of Ophthalmology
218	Breinin	Electromyography
229	Coston	Inflammatory & Degenerative Disease of the Retina
235	Danielson	Retinoblastoma
248	Fry	Lesions at Posterior Pole of Eye
256	Hague	Irradiation in Ophthalmology
258	Hanno	Internal Medicine: Ophthalmic Problems
259	Hanser	Studies in Ocular Allergy
266	Iliff	Ptosis
276	Keyes	Retinal Vascular Disease
307	Merriam	Radiotherapy
348	Walsh	Neurological Syndromes

Key M-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
205	Amenabar	Retinal Detachment: Localization & Closure of Tears
206	Atkinson	Selection of Procedure for Cataract Extraction
211	Benton	Refraction: Handling the Difficult Patient
219	Calhoun	Dystrophies & Degenerations of the Cornea
225	Cohoe	Special Reading Instruction for the Partially Seeing
227	Cordes	Eye Changes in Diabetes
233	Cutler	Cataract: Methods of Extraction
234	Daily	Biomicroscopy of Vitreous & Fundus Oculi
236	Davidson	Surgical Instruments: Preparation & Care
237	Davis	Sutures in Cataract Surgery
238	Diskan	Visual Screening in Schools
246	Fralick	Surgical Anatomy in Operations for Glaucoma
247	Fread	Ideal Refraction Equipment
255	Gump	Recurrent Iridocyclitis
269	Jardon	Fitting Ocular Prostheses
272	Kasper	Dacryocystorhinostomy
274	Kennedy	Practical Perimetry
277	Kirby	Problems in Presbyopia
283	Leinfelder	Papilledema & Optic Neuritis
297	MacLean	Surgical Management of Cataracts
299	Mangold	Proper Fitting of Glasses
312	Murrah	Aids for Subnormal Vision
318	Perera	Retinal Detachment
325	Reese	Orbital Tumors
345	Uihlein	Neuralgias of the Head

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Tuesday

Key T-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
204	Alvaro	Uveitis: Etiology & Treatment
207	Baird	Lesions of the Orbit: Differential Diagnosis
217	Boyes	Problems in Eye Surgery
228	Cordes	Surgery of Congenital Cataracts
239	Dixon	Indirect Ophthalmoscopy
240	Dunlap	Divergence Anomalies
241	Egan	Cross Cylinder: Application & Theory
243	Falls	Ocular Geriatrics
244	Fink	Binocular Problems in Routine Refraction
249	Gaines	Ophthalmologic Examination from a Neuro-ophthalmologic Viewpoint
270	Jones, L.	The Lacrimal Drainage System
289	Lewis	External Diseases
294	Lowrey	Tropical Ophthalmology
298	Macnie	Head Trauma with Ocular Symptoms
303	Maumenee	Surgical Indications for Corneal Procedures
310	Morrison	Office Management of Glaucoma
316	Paulson	Lighting for Comfortable & Accurate Seeing

Key T-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
218	Breinin	Electromyography
250	Gartner	Fundus Diseases
251	Gifford	Surgical Procedures on Lacrimal Apparatus
256	Hague	Irradiation in Ophthalmology
260	Harley	Lesions of 3rd, 4th and 6th Cranial Nerves
263	Hester	Clinical Photography
268	Jampolsky	Ocular Divergence
271	Joy	Cerebral Angiography
282	Leahey	Corneal Transplantation
290	Linksz & Tait	Telescopic Lenses & Magnifying Systems
309	Miller	Corneal Disease
319	Pino & Edwards	Correction of Aphakia
326	Rizzuti	Tumors of the Lids & Ocular Adnexa
330	Rychener	The Lacrimal Apparatus
342	Swan	Advances in Ophthalmic Therapy

Key T-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
212	Berens	Cyclodiathermy, Cycloelectrolysis, Iridencleisis & Cyclodialysis
219	Calhoun	Dystrophies & Degenerations of the Cornea
224	Chandler	Cataract Surgery: Complications
231	Cunningham	Types of Head Pain
233	Cutler	Cataract: Methods of Extraction
234	Daily	Biomicroscopy of Vitreous & Fundus Oculi
247	Fread	Ideal Refraction Equipment
252	Gipner	Recent Advances in Ophthalmology
274	Kennedy	Practical Perimetry
277	Kirby	Problems in Presbyopia
279	Kornzweig	Practical Embryology
284	Leinfelder	Perimetry & Use of Tangent Screen
292	Lloyd	Diseases of Cornea
295	Lubkin	Psychosomatic Aspects of Ophthalmology
296	Luce	Wound Healing
299	Mangold	Proper Fitting of Glasses
304	McDonald	Value of Tinted Lenses
318	Perera	Retinal Detachment
327	Roberts	Early Diagnosis of Glaucoma
329	Ruedemann	Physiologic Changes Due to Vertical Muscles
331	Scarney	Slit Lamp Biomicroscopy
332	Scheie	Surgery for Congenital Glaucoma
345	Uihlein	Neuralgias of the Head

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Wednesday

Key W-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
220	Cassady	Dacryocystitis & Lacrimal Drainage
222	Chamberlain	Vertical Motor Anomalies
232	Cusick	Ptosis
239	Dixon	Indirect Ophthalmoscopy
241	Egan	Cross Cylinder: Application & Theory
257	Haik	Intracapsular Cataract Extraction
262	Havener	Abnormalities of the Optic Disc
275	Kestenbaum	Chiasmal Diseases
278	Klien	Clinical Pathology of the Retina
281	Kronfeld	Choice of the Surgical Procedure in Glaucoma
285	Lemoine	Vitreous Opacities
288	Levy	Motion Picture Photography
289	Lewis	External Diseases
306	McGuire	Heterophoria & Heterotropia
310	Morrison	Office Management of Glaucoma
311	Mullen	Ophthalmic Emergencies
340	Steffensen	ACTH, Cortisone & Hydrocortisone
343	Tassman	Retinopathy in Diabetes

Key W-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
209	Haas	Congenital Glaucoma: Diagnosis & Treatment
251	Gifford	Surgical Procedures on Lacrimal Apparatus
253	Givner	Eye Changes in Systemic Disease
261	Harris	Anesthetic Agents & Techniques
265	Hughes	Advances in Diagnosis & Surgical Treatment
280	Kronenberg	Practical Ocular Therapeutics
282	Leahey	Corneal Transplantation
290	Linksz & Tait	Telescopic Lenses & Magnifying Systems
293	Lloyd	Fundus Lesions of the Senile Eye
300	Mann, M.	Hypertensive Vascular Changes in the Fundus
302	Marshall	Chronic Infections of the Lids
315	Olson	Iritis, Iridocyclitis & Keratitis
323	Prewitt	External Eye Diseases Associated with Allergy
330	Rychener	The Lacrimal Apparatus
337	Solanes	Uveomeningitis Syndromes
344	Theodore	Ocular Therapeutics
352	Wood	Inflammatory Central Retinal Lesions

Key W-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
205	Amenabar	Retinal Detachment: Localization & Closure of Tears
221	Cassady	Toxoplasmic Retinochoroiditis
252	Gipner	Recent Advances in Ophthalmology
254	Gordon	Visual Aids
264	Hogan	Lesions of the Choroid
284	Leinfelder	Perimetry & Use of Tangent Screen
287	Lepard	Eye Diseases Common to Children
301	Mann, W.	Functional Visual Impairment
305	McGraw	Contact Lenses
308	Meyer	Surgical Treatment of Glaucoma
314	Nethercut	Chorioretinitis: Etiology & Treatment
317	Payne	Extraction of Complicated Cataract
320	Pino & Edwards	Problems in Bifocals
322	Post	Refinements of Refraction
324	Randolph	Advanced Glaucoma
328	Rudolph & Schlaegel	Chemotherapy
332	Scheie	Surgery for Congenital Glaucoma
336	Simpson	Probing of the Nasolacrimal Duct
339	Spaeth	Plastic Surgery: Practical Aspects
341	Sugar	Office Diagnosis of Glaucoma
346	Vail	Surgery of the Senile Cataract
347	Veirs	External Dacryocystorhinostomy
349	Weisser	Chronic Uveitis
351	Wise	Fundus Change of the Optic Nerve Head

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Thursday

Key Th-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
202	Alfano	Internal Carotid Artery
220	Cassady	Dacryocystitis & Lacrimal Drainage
222	Chamberlain	Vertical Motor Anomalies
230	Cowen	Office Technique for Simplified Gonioscopy
232	Cusick	Ptosis
259	Hanser	Studies in Ocular Allergy
275	Kestenbaum	Chiasmal Diseases
278	Klien	Clinical Pathology of the Retina
285	Lemoine	Vitreous Opacities
287	Lepard	Eye Diseases Common to Children
298	Macnie	Head Trauma with Ocular Symptoms
306	McGuire	Heterophoria & Heterotropia
311	Mullen	Ophthalmic Emergencies
321	Posner	Glaucomatocyclitic Crises
331	Scarney	Slit Lamp Biomicroscopy
333	Schwartz	Eye Changes Associated with Skeletal Diseases
335	Simpson	Convergence Insufficiency & Divergence Excess
338	Spaeth	Selection of Surgery for Complicated Ptosis
340	Steffensen	ACTH, Cortisone & Hydrocortisone
343	Tassman	Retinopathy in Diabetes

Key Th-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
209	Haas	Congenital Glaucoma: Diagnosis & Treatment
214	Bettman	Radioactive Isotopes
260	Harley	Lesions of 3rd, 4th & 6th Cranial Nerves
280	Kronenberg	Practical Ocular Therapeutics
286	Lennon	Therapy of Acute Inflammatory Glaucoma
300	Mann, M.	Hypertensive Vascular Changes in the Fundus
302	Marshall	Chronic Infections of the Lids
308	Meyer	Surgical Treatment of Glaucoma
315	Olson	Iritis, Iridocyclitis & Keratitis
323	Prewitt	External Eye Diseases Associated with Allergy
334	Shipman	Scleral Resection
344	Theodore	Ocular Therapeutics
349	Weisser	Chronic Uveitis
352	Wood	Inflammatory Central Retinal Lesions

Key Th-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
317	Payne	Extraction of Complicated Cataract
347	Veirs	External Dacryocystorhinostomy

CONTINUOUS COURSES AND PANEL DISCUSSIONS
OTOLARYNGOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
101	Brewer & Briess	Voice Therapy	2 PERIODS Th-2, Th-3
102 or 103	Conley, Daly & Martin	Carcinoma of Head & Neck	2 PERIODS T-1, T-2 or W-1, W-2
104	Converse	Nasal Plastic Surgery—Basic	2 PERIODS T-1, T-2
105	Converse	Nasal Plastic Surgery—Advanced	2 PERIODS Th-2, Th-3
106 or 107	Craft	Nasal Allergy	2 PERIODS T-2, T-3 or Th-2, Th-3
108 or 109	Dixon, Sooy & Goodale	Rhinologic Problems	2 PERIODS T-2, T-3 or W-2, W-3
110	Fox et al	Noise in Industry	2 PERIODS Th-2, Th-3
111 or 112	Hansel	Allergy	2 PERIODS W-2, W-3 or Th-1, Th-2
113 or 114	Hardy & Pauls	Clinical Audiometry for Young Children	2 PERIODS T-1, T-2 or W-1, W-2
115	Hilding	Physiology of Hearing: Relation to Hearing Loss	2 PERIODS T-2, T-3
116 or 117	Jackson	Cancer of Larynx, Bronchi & Esophagus	2 PERIODS W-2, W-3 or Th-2, Th-3
118	Kazanjian et al	Traumatic Injuries of Face	2 PERIODS W-2, W-3
119	Lindsay	Vertigo	2 PERIODS Th-1, Th-2
120	Maxwell	Diseases of Salivary Glands	2 PERIODS W-1, W-2
121 or 122	Meltzer et al	Your Otological Office Problems	2 PERIODS T-1, T-2 or W-2, W-3
123 or 124	Mueller et al	What the Otologist Should Know About Hearing Aids	2 PERIODS T-1, T-2 or Th-2, Th-3
125	Reed et al	Voice Therapy	2 PERIODS T-1, T-2
126	Scheldrup	Anatomy of Neck	2 PERIODS Th-2, Th-3
127 or 128	Seltzer	A Typical Rhinoplasty	2 PERIODS T-2, T-3 or Th-2, Th-3
129 or 130	Walsh	What Can Be Done for Deafness	2 PERIODS T-1, T-2 or Th-1, Th-2
131 or 132	Work	Techniques in Wide Field Laryngectomy	2 PERIODS T-2, T-3 or W-2, W-3
133	Harbert	Clinical Audiology	2 PERIODS Th-2, Th-3

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Tuesday

Key T-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
401	Adin	Approaches to the Mastoid Antrum
402	Albers	Branchial Anomalies
403	Alexander	The Adenoid Problem
406	Anderson	Streamlined Allergy History
410	Baker	Chronic Nonspecific Laryngitis
413	Bell	Harelip Nose in the Adult
419	Cody	Eustachian Tube
425	Davies	Pharynx Development in Man
447	Hantman	Newer Aids in Teaching Otology
449	Harris	Nasal Polypi
453	Holinger & Johnston	Bronchoscopic Techniques
458	Huffman	Treatment of Facial Fractures
465	Keim	Management of Parotid Tumors
475	Lewis, J.	Facial Scars
491	Putney	Combined One-Stage Pharyngeal Diverticulectomy
498	Sellers	Frontal Sinusitis: Acute & Chronic Infections
499	Senturia	Diseases of the External Ear
505	Skolnik	Cleft Palate
512	Tato	Tympanoplasty: Functional Examination
516	Tschiassny	Labyrinthine Function

Key T-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
405	Altmann	Tympanoplasty
417	Brodnitz	The Actor & Singer in ENT Practice
424	Crispell	Allergy in Children
436	Forman	Binaural Hearing
450	Higbee	Office Practice
466	Kelemen	Stapes Mobilization
468	Kemler	Bilateral Thyrotomy for Cancer of Larynx
472	Lawrence	Acoustic Tolerance of the Individual Ear
476	Lewis, M.	Temporal Bone Surgery
486	Neivert	Workshop for Deformed Instruments
494	Rinkel	Food Allergy
502	Simmons	Problem of Bleeding Patient
507	Smith	Facial Nerve Paralyses
515	Tremble	Practical Therapeutics in Office Practice
517	Van Alyea	Management of Sinusitis

Key T-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
407	Anson & Bast	Anatomy of Ear & Temporal Bone
412	Becker	Plastic Surgery of Protruding Ears
414	Bellucci	Submucous Resection of Nasal Septum
416	Brandenburg	Understanding the Problem Patient
418	Canfield	Speech Audiometry
423	Crane	Helpful Hints
427	Dean	Practical Neuro-otolaryngology
428	Derlacki	Conductive Deafness
434	Ferguson	Pediatric Bronchography
437	Fowler	Facial Paralysis & Tics
456	House	Surgery of Chronically Discharging Ear
461	Jones	Allergic Rhinitis
474	Lempert	Temporal Bone Surgery
482	Miller, J.	Mucolytic Aerosols for Obstructive Respiratory Conditions
485	Morrison	The Pain in the Neck
493	Reger	Practical Office Audiometry
496	Ryan	Headache
508	Som	Laryngoesophagectomy
511	Syracuse	Prevention of Postoperative Drooping of Nasal Tip
520	Wanamaker	Temporomandibular Joint
522	Williams	Treatment of Meniere's Disease
524	Wynn	External Nasal Growths

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Wednesday

Key W-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
402	Albers	Branchial Anomalies
403	Alexander	The Adenoid Problem
404	Alfaro	Office Design & Equipment
408	Anthony	Atresias of Ear Canal
409	Ashley	Respiratory Allergy
413	Bell	Harelip Nose in the Adult
426	Davison	Ethmoid Sinus Disease
429	DeWeese	Problem of the Dizzy Patient
449	Harris	Nasal Polypi
451	Hilger	The Injured Malar Bone
452	Hilsinger	Vascular Headaches
457	House	Stapes Mobilization Procedure
459	Huffman	Acute Injuries of Soft Tissues of Face
462	Jordan	Nasal Fractures
467	Kelemen	Congenital Deafness
475	Lewis, J.	Facial Scars
480	McNally	Labyrinthine Tests
492	Reed, McLaurin & Senturia	Pathology & Bacteriology
493	Reger	Practical Office Audiometry
501	Shambaugh	Practical Office Routine
506	Skolnik	Electrodiagnosis of Facial Nerve
513	Tato	Tympanoplasty

Key W-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
405	Altmann	Tympanoplasty
411	Barrett	Neuroautonomic Aspects of Headache Therapy
420	Corgill	Laryngopharyngectomy & Bilateral Neck Dissection
439	Glorig	Hearing Aid Selection
447	Hantman	Newer Aids in Teaching Otology
464	Kasper	Dacryocystorhinostomy
469	Kinney	Hearing Impairments in Children
473	Lederer	Prevention of Otolaryngologic Misadventures
477	Lundy	Analgesia & Anesthesiology
484	Moore, P. M.	Cysts & Fistulas of Face & Neck
487	Neivert	Surgery of Bony Nasal Vault
488	Ogura	Laryngectomy & Neck Dissection
495	Rusk	Head-Low Position in Tonsillectomy
502	Simmons	Problem of Bleeding Patient
503	Simonton	Nasal Polyps
510	Suehs	Secretory Otitis Media
517	Van Alyea	Management of Sinusitis
521	Wanamaker	Pain on Side of Face

Key W-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
407	Anson & Bast	Anatomy of Ear & Temporal Bone
410	Baker	Chronic Nonspecific Laryngitis
412	Becker	Plastic Surgery of Protruding Ears
418	Canfield	Speech Audiometry
431	Erich	Fractures of Facial Bones
432	Farrior	Laryngectomy, Neck Resection & Cancer of Larynx
441	Goldman	Vasomotor Rhinitis
444	Gorney	Esophageal Strictures
445	Hamilton	Allergic Reactions to Drugs & Antibiotics.
460	Hunnicutt	The Chronically Congested Nose
461	Jones, E.	Allergic Rhinitis
463	Juers	Preservation of Hearing in Surgery
471	Kos	Stapedial Mobilization
474	Lempert	Temporal Bone Surgery
478	McHugh	Peripheral & Central Hearing Disorders in Children
479	McLaurin	Treatment of External Otitis
497	Schuknecht	Perceptive Deafness
514	Tolan	Treatment of Chronic Sinusitis
518	Von Leden & Moore, P.	Organic Voice Problems
519	Wallner	Effects of Tobacco on Respiratory Tract
524	Wynn	External Nasal Growths

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Thursday

Key Th-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
404	Alfaro	Office Design & Equipment
409	Ashley	Respiratory Allergy
429	DeWeese	Problem of the Dizzy Patient
430	Dolowitz	Adrenal Steroids as Anti-Inflammatory Agents
438	Gill	Mycotic Infections
440	Glorig	The Noise Problem
443	Goodhill	Management of Tinnitus
454	Holinger & Johnston	Pediatric Laryngology
455	Hoople	Pitfalls in Office Audiometry
457	House	Stapes Mobilization Procedure
460	Hunnicutt	The Chronically Congested Nose
470	Kobrak	Treatment of Middle Ear Deafness
480	McNally	Labyrinthine Tests
481	Miller, A.	Laryngeal & Tracheal Emergencies in Infants & Children
488	Ogura	Laryngectomy & Neck Dissection
489	Pearlman	ENT Complaints in Old Age
494	Rinkel	Food Allergy
500	Senturia	Middle Ear Effusions
501	Shambaugh	Practical Office Routine
504	Sisson	Carcinoma of Maxillary Sinus
509	Sooy	Benign & Malignant Tumors of Nasal Cavities
511	Syracuse	Prevention of Postoperative Drooping of Nasal Tip
516	Tschiassny	Labyrinthine Function

Key Th-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
417	Brodnitz	The Actor & Singer in ENT Practice
421	Costen	Mandibular Joint Syndrome
450	Higbee	Office Practice
464	Kasper	Dacryocystorhinostomy
469	Kinney	Hearing Impairments in Children
471	Kos	Stapedial Mobilization
473	Lederer	Prevention of Otolaryngologic Misadventures
484	Moore, P. M.	Cysts & Fistulas of Face & Neck
490	Perlman	Fluid in Middle Ear
491	Putney	Combined One-Stage Pharyngeal Diverticulectomy
496	Ryan	Headache
515	Tremble	Practical Therapeutics in Office Practice
522	Williams	Treatment of Meniere's Disease
523	Woodman	Glottic Obstruction

Key Th-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
415	Bellucci	Surgery of Stapes & Oval Window
419	Cody	Eustachian Tube
422	Craddock	Hay Fever
426	Davison	Ethmoid Sinus Disease
431	Erich	Fractures of Facial Bones
433	Farrior	Fenestration Operation
442	Goldman	Diseases of Maxillary Sinus
444	Gorney	Esophageal Strictures
446	Hampsey	Sinusitis in Children
451	Hilger	The Injured Malar Bone
478	McHugh	Peripheral & Central Hearing Disorders in Children
483	Missal	Skin Testing
485	Morrison	The Pain in the Neck
495	Rusk	Head-Low Position in Tonsillectomy
497	Schuknecht	Perceptive Deafness
498	Sellers	Frontal Sinusitis: Acute & Chronic Infections
514	Tolan	Treatment of Chronic Sinusitis

News - - - Notes

INTERNATIONAL CORRESPONDENCE SOCIETY OF OPHTHALMOLOGISTS AND OTOLARYNGOLOGISTS

The formation of the International Correspondence Society of Ophthalmologists and Otolaryngologists was recently announced. The Correspondence Society is an educational organization whose sole purpose is to publish the collected letters of its membership.

Any ophthalmologist, otolaryngologist, or physician practicing both specialties concurrently is eligible for membership. Because the Society is international in character, specialists throughout the world are invited to participate.

Members submit questions to the editor. He then polls member ophthalmologists or otolaryngologists (as indicated by the type question) in various parts of the world; their opinions are published in "Collected Letters." Different men are polled on each new question; in this way, members obtain a broad sweep of views on each question that arises.

The letters for ophthalmology and for otolaryngology are published separately. One may receive either set alone, or if he does combined work, he may obtain both.

The Editorial Advisory Board for Ophthalmology consists of James H. Allen, M.D., New Orleans; Michael J. Hogan, M.D., San Francisco; Philip R. McDonald, M.D., Philadelphia; Hugh L. Ormsby, M.D., Toronto; and Harold G. Scheie, M.D., Philadelphia.

The Editorial Advisory Board for Otolaryngology consists of Lawrence R. Boies, M.D., Minneapolis; French K. Hansel, M.D., St. Louis; Howard P. House, M.D., Los Angeles; Francis E. LeJeune, M.D., New Orleans; Philip E. Meltzer, M.D., Boston; Lewis F. Morrison, M.D., San Francisco; and George E. Shambaugh, M.D., Chicago.

Further information may be obtained from the Editorial Offices, 705 Baronne Bldg., New Orleans 12.

AMERICAN MEDICAL ASSOCIATION SECTION ON OPHTHALMOLOGY

The Section on Ophthalmology, American Medical Association, will meet in Chicago on the afternoons of June 12-14, 1956. On Tuesday, June 12, the chairman's address, "Foveal Coordination: The Major Factor in Visual Learning," will be given by A. D. Ruedemann, Sr., of Detroit.

The guest of honor is Francis C. Grant of Philadelphia, and his address, "Ocular Findings Associated with Meningiomas of the Tuberculum Sellae," with Thomas R. Hedges, Jr., of Philadelphia as co-author, will also be presented on Tuesday.

Other papers to be given that afternoon are the following: "Report of 500 Patients Examined for Low Vision," by Gerald Fonda, Short Hills, N. J. Discussion will be opened by William F. Murrah, Memphis.

"Unilateral Internuclear Ophthalmoplegia of Vascular Origin," by Max Fine and Charles B. MacGlashan, Jr., of San Francisco. Discussion will be opened by Francis Heed Adler, Philadelphia.

"Bullous Keratopathy," by A. Ray Irvine, Jr., Los Angeles. Discussion will be opened by David G. Cogan, Boston.

"Hazards of the Use of Sympathomimetic Drugs in Ophthalmology," by William U. McReynolds, Quincy, Ill.; William H. Havener, Columbus, Ohio; and John W. Henderson, Ann Arbor, Mich. Discussion will be opened by Frederick H. Theodore, New York.

A special business meeting, at 8:00 p.m., will include two addresses: "Public Relations," by Ralph O. Rychener, of Memphis, and "Distribution Responsibilities of the Specialties Represented in the Scientific Assembly," by Ralph H. Pino, of Detroit.

On Wednesday, June 13, election of officers will take place and will be followed by the following program:

"A New Magnetic Orbital Implant," by Orwyn H. Ellis and O. Robert Levy, of Los Angeles. Discussion will be opened by Richard C. Troutman, Brooklyn.

"Hypersecretion Glaucoma," by Bernard Becker, G. R. Keskey, and R. E. Christensen, of St. Louis. Discussion will be opened by W. Morton Grant, Boston.

"Observations on the Dissimilarity Between the Retinal Capillary Microaneurysm in Diabetes Mellitus and the Nodule of Intercapillary Glomerulosclerosis," by David Volk, Cleveland. Discussion will be opened by A. Edward Maumanee, Baltimore.

"Pseudostrabismus Caused by Heterotopia Maculae," by Harry Horwich, Biloxi, Miss. Discussion will be opened by Harold W. Brown, New York.

"Inflammation of the Retinal Arterioles and Veins With or Without Associated Intraocular Hemorrhages (Eales' Disease)," by Samuel J. Kimura, Michael J. Hogan, and Frederick R. Carriker, of San Francisco. Discussion will be opened by Georgiana Theobald, Oak Park, Ill.

"A survey of the Pathogenesis of Retinal Occlusion with Emphasis upon Choice of Therapy, and an Analysis of the Therapeutic Results in Sixty Patients," by Bertha A. Klien, Chicago. Discussion will be opened by John McGavic, Bryn Mawr, Pa.

On Thursday, June 14, the following program will be presented:

"The Use of Retrobulbar Air and Laminography in the Localization of Orbital Tumors," by G. R. Keskey and W. R. Letsch, of St. Louis. Discussion will be opened by Ira S. Jones, New York.

"Observations on Herpetic Keratitis," by Phillips Thygeson and Samuel J. Kimura, of San Francisco. Discussion will be opened by Trygve Gundersen, Boston.

"Fungus Keratitis," by T. E. Sanders and Albert P. Ley, of St. Louis. Discussion will be opened by E. R. Veirs, Temple, Texas.

"Vertical Muscle Imbalance and Scoliosis," by A. D. Ruedemann, Jr., Detroit. Discussion will be opened by William E. Krewson, 3rd, Philadelphia.

"Pitfalls in Strabismus Surgery," by Walter H. Fink, Minneapolis. Discussion will be opened by Hermann Burian, Iowa City, Iowa.

"Causes for Retinal Detachment Surgery Failure," by Bayard H. Colyer, Jr., and Dohrmann K. Pischel, of San Francisco. Discussion will be opened by Graham Clark, New York.

AMERICAN OTORHINOLOGIC SOCIETY FOR PLASTIC SURGERY, INC.

The American Otorhinologic Society for Plastic Surgery will meet in New York City, May 18 and 19, 1956. A scientific program will be presented at the Waldorf-Astoria Hotel on May 18, and an operative clinic at Montefiore Hospital will be held during the morning of May 19. The program will consist of medicodental presentations and plastic surgery of the head and neck.

ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY, INC.

The Association for Research in Ophthalmology, Inc., will hold its annual meeting, June 11-14, 1956, in the Oceanic Room at the Hotel Knickerbocker, Chicago.

On Monday, June 11, the program will begin at 1:00 p.m. and the following papers will be presented:

"Reactions of the Elements of Retina and Optic Nerve in Common Morbid Entities of the Human Eye," by J. Reimer Wolter.

"Observations on the Treatment of a Rabbit Tumor Transplanted into the Fundus," by Adolph W. Vogel.

"Experiments on Wound Healing in the Endothelium of the Cornea," by Rudolf F. Binder and Hertha Binder.

"The Occurrence of Lens Changes, Following Irradiation of Single and Multiple Quadrants," by R. D. Richards, Edward Riley and P. J. Leinfelder.

"The Effect of Moderate Doses of X-ray Irradiation on Ocular Tissues," by Bernard Becker, Marguerite A. Constant, Paul A. Cibis, Michel Ter-Pogossian and Rosalie Smith.

"Clinical and Experimental Fungus Infections of the Cornea," by Albert P. Ley.

"A Study of Strains of APC Virus Isolated from Patients with Keratoconjunctivitis," by A. Fowle, V. Simmons, and H. L. Ormsby.

"Observations on Experimental Trachoma and Inclusion Conjunctivitis," by T. T. Crocker, and Phillips Thygeson.

"Persistence of Toxoplasma Experimentally Inoculated Into Guinea Pigs' Eyes," by Michael J. Hogan, Phyllis Zweigart, and Ann Lewis.

"Ocular Penetration of Antibiotics by Iontophoresis," by S. H. Witzel, I. Fielding, and H. L. Ormsby.

"A Comparative Study of Scleral Shortening Operations in Rabbits," by William G. Everett.

Beginning on Tuesday at 8:00 a.m. and continuing until noon the program will be as follows:

"The Argyll Robertson Pupillary Syndrome," by Otto Lowenstein.

"Studies on the Autonomic Innervation of the Iris," by Julia T. Apter.

"Some Mechanisms of Centrally Induced Eye Pressure Responses," by Ludwig von Sallmann, Frank Macri, Theodor Wanko, and Patricia Grimes.

"Study on the Innervation of the Anterior Chamber Angle," by Monte Holland, Ludwig von Sallmann, and Eleanor Collins.

"The Technique of Determination of Blood Volume Changes in the Choroid and Retina," by J. W. Bettman and Victor G. Fellows.

"Cations and the Corneal Stroma," by W. Morton Grant.

"Measurements of Aqueous Outflow in Enucleated Eyes," by E. W. Purnell, C. E. Melton, Jr., and E. Q. Adams.

"Species Variation in Facility of Aqueous Outflow," by Bernard Becker and Marguerite A. Constant.

"Physiologic Variations of Bicarbonate Ion Concentration in the Intraocular Fluids," by Harry Green and Irving H. Leopold.

The Wednesday morning program includes the following papers:

"Spectro-Differential Electroretinography in Macular Disease," by Jerry Hart Jacobson and Demir Basar.

"The Effect of Hallucinogenic Drugs on the Electroretinogram," by Julia T. Apter.

"Clinical Studies with Flicker Electroretinography," by Gilbert Iser and George Goodman.

"The Effect of Rate of Rise of Photic Stimuli on the Human Electroretinogram," by Hans Bornschein and Ralph D. Gunkel.

"Studies on the Visual Toxicity of Methanol, No. 9. The Effect of Ethanol and Methanol Poisoning on the Rhesus Monkey," by A. P. Gilger and Albert M. Potts.

"Rod and Cone Vision in Retinitis Pigmentosa," by Bernard H. Zeavin and George Wald.

"Residual Proteins of the Vitreous," by Antia Suran and W. K. McEwen.

"The Development of Orbital Fascia," by Walter H. Fink.

"Microscopy with a New Illumination Technique," by Paul A. Cibis.

At 10:00 a.m. on Wednesday the program will be interrupted for a business meeting.

The Proctor Banquet will be held on Wednesday evening, in the library of the Furniture Club. There will be cocktails at 6:00 p.m. and dinner at 7:00 p.m. Tickets must be secured before Wednesday noon.

The scientific program will be continued on Thursday morning with the following presentations:

"A Quantitative Analysis of the Horizontal Movements of the Eyes in the Experiment of Johannes Mueller," by Mathew Alpern.

"Some Physiological Considerations of Hereditary Macular Degeneration," by Rodney D. Steinmetz and Kenneth N. Ogle.

"Eye Movements in an Adult with Cerebral Hemispherectomy for Tumor," by David Volk and Jan H. Bruell.

"Corneal Transport of Lactic Acid as Measured with C-14 Lactate," by Albert M. Potts and B. Cohen.

"The Hydration of the Cornea. II. The Influence of the Epithelium and Intraocular Pressure," by John E. Harris, Leta B. Gehrsitz and Louise Gruber.

"Effect of Castration on Galactose Cataract," by Robert A. Resnik and Eugene Streicher.

"Enzymatic Activities of Lens. A Preliminary Survey," by Bernard Wortman and Bernard Becker.

"Effect of Age Upon Lens Metabolism," by Harry Green, S. A. Solomon and Irving H. Leopold.

"Enzyme Systems Concerned with Oxidative Phosphorylation in Ciliary Processes," by Elmer J. Ballintine and Morton B. Waitzman.

"The Energy Requirements of the Lens—The Ability of Various Metabolites to Replace Glucose as Substrate," by Daniel J. Heinrichs and John E. Harris.

COLORADO

The Division of Ophthalmology, Department of Surgery, University of Colorado, and the Colorado Ophthalmological Society will sponsor a symposium on ocular motility to be held at the University of Colorado School of Medicine, Denver, July 23-26, 1956.

Guest lecturers will be Frances Heed Adler, M.D., Philadelphia; Harold Whaley Brown, M.D., New York; Hermann M. Burian, M.D., Iowa City, Iowa, and Arthur Jampolsky, M.D., San Francisco.

The complete program and details may be obtained from Office of Postgraduate Medical Education, University School of Medicine, 4200 East Ninth Ave., Denver 20.

FLORIDA

The Second Postgraduate Course in Esophageal Speech and Organic Voice Problems, sponsored by the University of Miami School of Medicine, will be held June 18-30, 1956. This is a 45-hour course and is under the direction of Nathaniel M. Levin, M.D., F.A.C.S., and members of the staff.

The class is limited to 30 members; otolaryngologists, surgeons, rehabilitation specialists and speech therapists are eligible.

Traineeships (tuition and traveling expenses), valued at $250.00 each, are available to qualified individuals.

Application should be made to Dean Homer F. Marsh, University of Miami School of Medicine, 1100 Anastasia Ave., Coral Gables, Fla.

MAINE

Colby College, Waterville, Maine, presents the Fourth Annual Course in Industrial Deafness, August 5-11, 1956. The objective of the course is to train personnel in initiating and in conducting hearing conservation programs in noisy industries. Seven full-time instructors have been selected from authorities in this field. The class is limited to twenty participants. Frederick Thayer Hill, M.D., is director and Joseph Sataloff, M.D., is associate director.

Registrants will live on the college campus, and the tuition fee of $200.00 includes board and room. Applications should be made to Mr. William A. Macomber, Division of Adult Education and Extension, Colby College, Waterville, Maine.

MICHIGAN

Kresge Eye Institute again offers its facilities for the training of orthoptic technicians. This program is open to any young woman over twenty years of age who has successfully completed at least two years of college or is a graduate nurse. Good health and vision are required of the trainees.

The course consists of 12 months' didactic and practical training. Didactic training, which is part of the Basic Ophthalmology course for doctors at Wayne University Graduate College of Medicine, will be given five mornings a week for the first semester. Lectures on refraction, retinoscopy, physiological optics, perimetry, ocular anatomy, neuroanatomy, and motility are given by members of the Kresge Eye Institute staff and professors of Wayne University College of Medicine.

Practical training must begin in mid-August, one month prior to the beginning of the lecture courses. This practical training continues for one year, at which time students are eligible to take the board examinations for certification given by the American Orthoptic Council, orally in August and in writing each fall.

Limited financial assistance is available for some students who require it. Requests may be made either through Kresge Eye Institute or the Delta Gamma Fraternity (Mrs. H. V. Draheim, 19641 Coral Gables, Birmingham, Michigan).

For further information write to A. D. Ruedemann, M.D., Kresge Eye Institute, 690 Mullett Street, Detroit 26, Michigan.

A comprehensive course in Basic Ophthalmology is offered by Wayne University Graduate College of Medicine in cooperation with the Kresge Eye Institute. Set up in its present form eight years ago under the direction of A. D. Ruedemann, M.D., the course has constantly been improved and expanded. This year a new auditorium and a teaching laboratory at the Kresge Eye Institute have greatly improved facilities for didactic training. The roomy, well-equipped eye clinic in

the Farwell Annex of Receiving Hospital makes possible thorough clinical training.

Prerequisites for the course are an M.D. degree from an accredited medical college and one year of rotating internship. Classes are held full-time for nine months; six mornings a week are taken up by lectures, five afternoons by clinics. Subjects covered are anatomy, bacteriology, embryology, histology, pathology, ophthalmic biochemistry, ophthalmoscopy, physiological optics, refraction and ocular motility. Other related subjects are also briefly surveyed, such as nutrition and endocrinology. The principles of surgery are taught by lectures and laboratory work on animals' eyes. Tuition is $500.

Four fellowships at Detroit Receiving Hospital are available each year. Harper and Wayne County General hospitals send their residents in ophthalmology to Wayne University Graduate College of Medicine for this training during their first year of residency. Tuition for fellows and residents in affiliated hospitals is only $108.

Openings are available for the academic year 1956-57. Classes begin on September 10, 1956.

Further information may be obtained from A. D. Ruedemann, M.D., 690 Mullet St., Detroit 26.

NEW YORK

A seminar on glaucoma, with particular emphasis on gonioscopy and the study of the anterior angle, will be given at the Brooklyn Eye and Ear Hospital on May 21, 22, and 23, 1956. Ample opportunity for practical instruction in the use of the gonioprism will be given, and material from the glaucoma clinic will be utilized.

The course will be given by Dr. Daniel Kravitz, assisted by Dr. Walter V. Moore, Dr. Mortimer A. Lasky, Dr. Harold Schilback, and Dr. Arthur Shainhouse.

Registration is limited to six ophthalmologists only. Application and the fee of $50.00 may be addressed to Dr. Daniel Kravitz, Brooklyn Eye and Ear Hospital, 29 Green Ave., Brooklyn 38.

Dr. Gerald B. Kara, ophthalmic pathologist to the State University of New York College of Medicine at New York City, will conduct a course in "Histopathology of the Eye," June 4-9, 1956.

For details, write to the Department of Ophthalmology, State University of New York College of Medicine at New York City, 451 Clarkson Ave., Brooklyn 3.

PENNSYLVANIA

The Committee on Postgraduate Education of the Montefiore Hospital announces an advanced course in Slit Lamp Biomicroscopy of the Living Eye, combined with additional courses in Ocular Gonioscopy, Indirect Ophthalmoscopy, Surgery of Intraocular Foreign Bodies, Surgery of Cataract, and Glaucoma Surgery, to be given by the Montefiore Department of Ophthalmology under the direction of Dr. Harvey E. Thorpe and associates. Guest speakers will be Dr. Robert J. Masters, of Indianapolis, and Mr. Lee Allen, of Iowa City, Iowa.

The course will be given at Montefiore Hospital, Pittsburgh, and will extend over five days, May 7-11, 1956, from 8:30 a.m. to 4:00 p.m., each day. The fee for the course is $80.00, and a deposit of $25.00 is required for registration.

For further information write to A. Lenas, Secretary of Postgraduate Ophthalmic Courses, 323 Jenkins Bldg., Pittsburgh 22.

ENGLAND

The Oxford Ophthalmological Congress will be held July 1-4, 1956, at Oxford. Papers will be presented by D. Ainslie, London; J. Barraguer-Moner, Madrid; Arthur J. Bedell, New York; R. Pitts Crick, London; L. P. Jameson Evans, Birmingham; A. C. L. Houlton, Oxford; Wolfgang Jaeger, Heidelberg; F. W. Law, London; E. H. Leach, Oxford; J. P. F. Lloyd, Oxford; T. Keith Lyle, London; R. G. Mac Beth, Oxford; J. McLenachan, Birmingham; J. Minton, London; Rupert Barry, Cardiff; A. Pirie, Oxford; and F. A. Williamson-Noble, London.

INDIA

The All-India Ophthalmological Society announces that the next award for the Adenwalla Oration will be made in 1957. The general body has decided to award the medal by merit for the most original research work on any ophthalmic subject. Those desirous of submitting material for the same should present to Dr. Y. K. C. Pandit the subject for the oration and a brief scheme of the line of approach before October 15, 1956. The material will be judged by the Scientific Committee.

POSITIONS AVAILABLE

Residency or assistantship in otolaryngology wanted. Male, age 33, educated in Amritsar Medical College, postgraduate course in E.N.T., Amritsar Medical College Hospital, two years Punjab Government Service, member of the Association of Otolaryngologists of India. Elected last year for a residency in U. S. A. by the Indian Medical Association. Address: Dr. Harnam Singh Kohli, Durga Charna Road, Ambala Cantt., Punjab, Br. India.

Listings of positions available should be sent to W. L. Benedict, M.D., 100 First Avenue Building, Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist; diplomate, resident, etc.); (2) type of position to be filled; and (3) whom to write for further information. Unless otherwise requested, listings will be published once only.

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CLINICS IN MEXICO

The scientific program of the Sixty-first Annual Session of the Academy will be continued through Clinics in Mexico on Monday and Tuesday, October 22 and 23. In addition to visits at some of the many fine clinics and hospitals in Mexico, this post-convention tour will be made memorable by visits to many of Mexico's most beautiful and historic sites.

Of all the Latin American countries, Mexico is the most interesting. Great civilizations, now unknown to us, had lived, risen and fallen in the Valle of Mexico before the time of Montezuma and Cortez. Scientists and antiquarians say the ruins are 8,000 to 9,000 years old, and the valley's history may have antedated these ruins by thousands of years, perhaps as many as 20,000 years.

The early tribes living on the Central Plateau where Mexico City is now located were the most cultured. We shall see a superb example of their work in the Pyramids of the Sun and Moon an the Temple of Quetzalcoatl.

The written history of Mexico begins with the Conquest by Spain in 1521. Here the conquerors found great riches and took them. They also built magnificent churches and palaces, many of which remain and some of which we shall see. The population of Mexico is around 30,000,000: about 30 per cent native, pure Indian; another 60 per cent mixed Indian and White (Mestizo), and the rest White of European descent.

Our sightseeing program begins on Sunday morning with three oustanding features. We shall go first to the Floating Gardens of Xochimilco. The lakes and canals which were, at the time of the Aztecs, the principal means of communication have now dwindled to the area of Xochimilco. Here we board one of the colorfully decorated "chalupas" poled by the Indian equivalent of an Italian gondolier. The ride through the islands is most pictureque, with tall trees providing contrast for the many varieties of flowers and vegetables.

This trip also includes a visit to the ex-Convent of Churubusco. One of the final battles between the United States and Mexico took place in and around this building during the War of 1847. Since we will make this tour on Sunday, we will visit the Palace of Fine Arts, where the famous Tiffany Glass Curtain is displayed as a special event on Sunday morning only.

Bull fights are generally held on Sunday afternoon, and this afternoon is left free to accommodate those who may wish to see this sport.

On the Monday afternoon Tour of Mexico City, we will see modernistic sky-scrapers alternating with colonial architecture. Although we shall visit such highlights as the Cathedral, National Palace, 16-ton Calendar Stone, Chapultepec Castle and its spacious park, they are but a few of the many points of interest to be seen. Chapultepec park is one of the lovliest natural parks in the world. The Castle stands on top of a hill where an Aztec fortress once stood. It has had a remarkable history. It was the imperial residence of Maximilian and Carlotta, and it is now a museum displaying the palace furnishings.

In addition, we will drive through broad plazas and avenues, and through the teeming markets filled with exotic fruits and vegetables; we will have a good look at the residential districts—and on all sides see the modern rubbing blows with the ancient; the modern automobile waiting for a traffic signal while an Indian from the back country drives his burro toward the marketplace.

See the next issue of TRANSACTIONS for further detail of the sightseeing planned in connection with Clinics in Mexico City.

MANUALS

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